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In cooperation with
United States
Department of the
Interior, Bureau of Land
Management, and
University of Nevada
Agricultural
Experiment Station

Soil Survey of Washoe County, Nevada, North Part

Part I

How To Use This Soil Survey

This survey is divided into three parts. Part I includes general information about the survey area; descriptions of the detailed soil map units and soil series in the area; and a description of how the soils formed. Part II describes the use and management of the soils and the major soil properties. Part III includes the maps.

The **detailed soil map units** follow the general information about the survey area. These map units can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**, note the number of the map sheet, and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units** in Part I of this survey, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

A **State Soil Geographic Database (STATSGO)** is available for this survey area. This database consists of a soils map at a scale of 1 to 250,000 and descriptions of groups of associated soils. It replaces the general soil map published in older soil surveys. The map and the database can be used for multicounty planning, and map output can be tailored for a specific use. More information about the State Soil Geographic Database for this survey area, or any portion of Nevada, is available at the local office of the Natural Resources Conservation Service.

Some standards or values may change as more information is collected and analyzed. Thus, as older published interpretive information becomes outdated, new interpretive data must be generated and tailored to local conditions. This information is added to the State Subset of the **Map Unit Interpretation Record (MUIR)** database as needed. Map Unit Interpretation Records are the soil survey specific data and interpretations in the state soil survey database.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1994. Soil names and descriptions were approved in 1995. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1994. This survey was made cooperatively by the Natural Resources Conservation, Bureau of Land Management, and University of Nevada Agricultural Experiment Station. It is part of the technical assistance furnished to the Vya Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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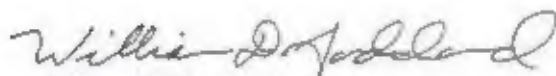
Foreword

This soil survey contains information that can be used in land-planning programs in Washoe County, Nevada, North Part. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Nevada Cooperative Extension.



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Soil Survey of Washoe County, Nevada, North Part

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Fieldwork by Steve Slusser and Edward W. Blake, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service
in cooperation with the Bureau of Land Management and the University of Nevada
Agricultural Experiment Station

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes, the general pattern of drainage, the kinds of crops and native plants, and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind or segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, soil scientists develop a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientists to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Individual soils on the landscape commonly merge into one another as their characteristics gradually change. To construct an accurate map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted color, texture, size

and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to

year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Denied Access and Areas of Reduced Reliability.

In some small areas of the survey area, access was denied or otherwise restricted. Soil map units were interpolated across the area of denied access using photographic interpretation based on the map units in the adjacent areas. The accuracy of the photo interpretation is dependent on several factors, including the size and complexity of the area, the scale and quality of the photobase, and the degree of relief across the landscape. Because the mapping is made using methods other than field investigation, the reliability of mapping is reduced.

About 20,000 acres in the general vicinity of Vya have been mapped with reduced reliability.

General Nature of the Survey Area

This section gives general information about the survey area. It briefly discusses history, industries, transportation, and recreation, physiography, drainage, and geology, and climate.

History

The original inhabitants of this survey area were the Paiute Indians. John C. Fremont was the first explorer of the area to make recorded observations. He led a party on an expedition to find the legendary Buenaventura River. This river was thought to flow from the Rocky Mountains to San Francisco Bay.

The Applegate Road and Noble Trail were early routes winding westward through the area. They were traveled by thousands of emigrants to northern California. The Applegate Road crosses through the survey area. Noble Trail crosses Black Rock and Smoke Creek Deserts. In 1854, John Dreibeis surveyed and mapped both of these deserts for the Pacific Railroad. Fortynine Lake was named for an 1849 crossing.

Vya, the tiny settlement north of Fortynine Canyon, near the junction of State Routes 8A and 34 in Long Valley was named for Vya Wimer, the first white baby born in the valley. (4)

Massacre Lake is a small lake, or dry sink, east of Vya. A large wagon train was reputedly attacked near there in 1850 by Indians of the High Rock Canyon country. Forty men of the emigrant party were supposed to have been killed in the battle and interred in a common grave. (4)

Industry, Transportation, and Recreation

The Washoe County, Nevada, North Part is an area of sparse population and limited development. The primary industry is livestock production with livestock grazing on federal grazing allotments administered mainly by the Bureau of Land Management, and on various private holdings scattered throughout the area. Sporadic mining exploration has occurred in the area, but there is presently no active mining on a large scale. The principal mineral in the area is mercury, with widespread occurrences of radioactive materials in the Lone Pine mining district. (3)

The major access to the survey area is provided from Denio and Cedarville, California, via State Route 8A and from Gerlach via State Route 34. Both are improved gravel roads. Travel on these and other roads in the survey area may be restricted during the winter months. Winter travel should be approached with caution.

The survey area is actively used by recreationists who come to hunt, rock-hound, take photographs, or simply to enjoy the scenic open spaces in the area. Principal game species include mule deer, pronghorn antelope, upland game birds, and waterfowl. Rock hounds may find obsidian, petrified wood, and various other rocks and minerals. The nearby towns of Gerlach, NV, to the south, Cedarville, CA, to the west, or Denio, NV, to the east are the principal sources of fuel and supplies for recreationists and others. There are no such services available in the survey area.

Physiography, Drainage, and Geology

The Washoe County, Nevada, North Part is in the northern portion of the Basin and Range Province. (5) It is transitional to the Columbia Plateaus Province. The area is typified by broad, elongated valleys with no external drainage and long mountain ranges running north to south. The north and eastern parts of the area are dominated by dissected plateaus.

The plateaus and mountains are drained by numerous small, intermittent streams and infrequently by perennial streams such as Coleman Creek. Drainages converge in the basins, giving rise to numerous playas and intermittent lakes. During periods of spring runoff, these lakes and playas are filled with shallow water, drying out again by late summer in most years. In wet years, some of the deeper lakes may be wet throughout the year. Crooks Lake, Mosquito Lake, Massacre Lake, and Alkali Lake are prominent intermittent lakes in the area.

Volcanic rocks of the Canyon assemblage dominate the geology of the survey area. (3) According to Bonham (3), this assemblage of volcanic rocks is dated from Oligocene to Pliocene with the oldest rocks being dacitic, andesitic, and basaltic flows of Oligocene and Miocene age. These are rather isolated units, located around Bald Mountain east of Alkali Lake and east of Coleman Canyon.

Rocks of the late Miocene Canon Rhyolite, composed of flows, welded ash-flow tuff, and domes of rhyolite are

abundant near Coleman Creek and to the south and west of Painted Point. Devada, Ninemile and Hart Camp are typical soils formed on the hard rocks of these areas. Locally large areas of ash-flow, ash-fall, water-lain tuffs and water re-worked tuffs with small areas of diatomite and tuffaceous sedimentary rocks of late Miocene age occur. Notable areas of these rocks, identified as the High Rock sequence, are found near High Rock Canyon, Fortynine Creek and Painted Point. Ashone, Tuffo, Saraph and Hangrock soils are typical of soils formed on the tuffaceous rocks of the High Rock sequence. The youngest rocks of the Canyon assemblage are of the basalt of late Miocene to Pliocene age. They are extensive around Barre Springs, Bitner Butte and capping the peaks of the Hays Canyon Range south of Fortynine Creek. Devada and Ninemile soils are common on these areas.

Quaternary deposits occupy the basins, both as lacustrine deposits from Pleistocene lakes and as more recent alluvial deposits. Remnant lake features are an important part of the landscape in many parts of the area. McWatt, Paypoint and Langston soils are typical of soils formed in lacustrine deposits from ancient lakes. Soils formed on alluvial fans and fan piedmonts are also common. Fustone and Valmy are examples of soils formed in alluvial deposits.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Vya and Sheldon. Vya is located in the west-central part of the survey area. The Sheldon weather station is located on the Sheldon National

Wildlife Refuge, just east of the survey area. Table 2 shows probable dates of the first freeze in fall and the last freeze in the spring. Table 3 provides data on length of growing season.

Growing degree days, shown in Table 1, are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

In Washoe County, summers are hot, especially at the lower elevations, and winters are cold. At the lower elevations, precipitation is normally light during all months of the year and the land is used mainly for range. At higher elevations, precipitation is much greater and snow accumulates to a considerable depth. Some of the snowmelt irrigates crops in nearby valleys. Climatic data for Vya and Sheldon, Nevada, reflect the climatic diversity of the survey area.

In winter, the average temperature is 28 degrees F and the average daily minimum temperature is 19 degrees F at Sheldon and 30 degrees and 18 degrees respectively at Vya. In summer, the average temperature is 58 degrees F, and the average daily maximum temperature is 75 degrees F at Sheldon and 62 degrees and 80 degrees respectively at Vya.

The total annual precipitation is about 12 inches at Sheldon and 14 inches at Vya, Nevada. About 38 percent of the total annual fall is from April through September. The growing season for most crops falls within this period.

Detailed Soil Map Units

The map units on the detailed maps in Part III of this publication represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section along with the maps can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the headings "Use and Management of the Soils" and "Soil Properties."

A map unit delineation on the detailed soil maps represents an area dominated by one or more soils or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class, there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, are mapped without including areas of other taxonomic classes. Consequently, map units are made up of the soils or miscellaneous areas for which they are named and some "included" areas that belong to other taxonomic classes.

Most included soils have properties and behavioral characteristics similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic

classes but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit. The principal hazards and limitations to be considered in planning for specific uses are identified in the tables and narrative in Part II.

Kinds of Map Units

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Some of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, occasionally flooded is a phase of the Welvit series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or associations. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Soughie-Rock outcrop complex, 4 to 30 percent slopes is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Saraph-Hangrock-Tuffo association is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Acreage and Extent

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

Headings and Introductory Phases

In the map unit descriptions that follow, a semitabular format is used. In this format the major headings are centered in the column; for example, *Composition*. They identify the information grouped directly below them. Introducing each item of information under the centered heading is a term or phrase (for example, *Major Components*) that identifies or describes the information. Many of the centered headings and introductory terms are self-explanatory; however, some of them need further explanation and are defined in the Glossary. Explanations of the headings and introductory phrases are provided in the following paragraphs, generally in the order in which they are used in the map unit descriptions.

Composition is given for the components (soils or miscellaneous areas) identified in the name of the map unit as well as for the contrasting inclusions.

Contrasting inclusions are areas of components that differ sufficiently in use and management from the soils or miscellaneous areas for which the map unit is named. As was explained earlier, inclusions can either be *similar* or *contrasting*. Note that in the *Composition* section a single percentage is provided for a named soil and its similar inclusions because their use and management are similar.

Map Unit Setting is given for the entire map unit. This section gives the position on the landscape. The landscape positions given for the entire map unit generally are broader than those given for each component. Below the map unit setting, the position of each component and inclusion is stated, and the physiographic location of each is identified.

Major Component Description lists the characteristics of the major components. These include elevation, texture of the surface layer, drainage class, parent material, and climatic data.

Dominant Present Vegetation lists the common plants growing on each soil at the present time. The present vegetation may be similar to the potential native plant community, but in some areas it consists of other plants, either cultivated or wild, that dominate the soils in the map unit.

Ecological Site is the assigned rangeland or grazed forest (and ecological) site that identifies a unique potential native plant community. The plant species and production typical of each ecological site are listed by map unit in the section "Range and Plants and Woodland Useability." Additional information about these sites is provided under the heading "Range and Grazable Woodland Resource Management" in Part II of this publication. Further information also can be obtained from the local office of the Natural Resources Conservation Service.

Map Unit Descriptions

1010--Macyflat-Boulder Lake association

Composition

Major Components

Macyflat silty clay loam 0 to 2 percent slopes--60 percent

Boulder Lake silty clay 0 to 2 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Payson gravelly sandy loam 0 to 2 percent slopes--10 percent

Inclusion 2 Davey loamy fine sand 2 to 8 percent slopes--5 percent

Map Unit Setting

Landscape position Boisons

Macyflat--Landform Alluvial flats

Boulder Lake--Landform Alluvial flats

Inclusion 1--Landform Lagoons

Inclusion 2--Landform Beach terraces

Major Component Description

Macyflat Series

Elevation 5,500 to 6,000 feet

Precipitation About 12 inches

Air temperature About 43 degrees

Frost-free season About 80 days

Surface layer texture Silty clay loam

Drainage class Moderately well drained

Dominant parent material Alluvium derived from lacustrine sediments

Boulder Lake Series

Elevation 5,500 to 6,000 feet

Precipitation About 12 inches

Air temperature About 43 degrees

Frost-free season About 80 days

Surface layer texture Silty clay

Drainage class Very poorly drained

Dominant parent material Alluvium derived from mixed rocks and lake sediments

Dominant Present Vegetation

Macyflat Thurber needlegrass, alkali sagebrush, bluegrass

Boulder Lake Bluegrass, silver sagebrush

Inclusion 1 Douglas rabbitbrush, basin wildrye, big sagebrush

Inclusion 2 Indian ricegrass, basin big sagebrush, needleandthread

Ecological Site

Macyflat 023XY090NV

Boulder Lake 023XY003NV

Inclusion 1 023XY082NV

Inclusion 2 023XY051NV

1011--Macyflet silt loam, 0 to 2 percent slopes**Composition****Major Components**

Macyflet silt loam, 0 to 2 percent slopes--90 percent

Contrasting Inclusions

Inclusion 1--Boulder Lake silt loam, 0 to 2 percent slopes--6 percent

Inclusion 2--Paypoint gravelly sandy loam, 0 to 2 percent slopes--4 percent

Map Unit Setting

Landscape position: Bolsons

Macyflet--Landform: Basin floors

Inclusion 1--Landform: Lake plains, shape of slope concave

Inclusion 2--Landform: Lagoons

Major Component Description**Macyflet Series**

Elevation: 5,700 to 6,200 feet

Precipitation: About 12 inches

Air temperature: About 43 degrees

Frost-free season: About 80 days

Surface layer texture: Silt loam

Drainage class: Moderately well drained

Dominant parent material: Alluvium derived from lacustrine sediments

Dominant Present Vegetation

Macyflet: Cusick bluegrass, Thurber needlegrass, alkali sagebrush, basin wildrye

Inclusion 1: Bluegrass, silver sagebrush

Inclusion 2: Basin wildrye, big sagebrush, rabbitbrush

Ecological Site

Macyflet: 023XY090NV

Inclusion 1: 023XY003NV

Inclusion 2: 023XY082NV

1012--Macyflet-Indian Creek association**Composition****Major Components**

Macyflet silt loam, 0 to 2 percent slopes--45 percent

Indian Creek very cobbly loam, 2 to 8 percent slopes--40 percent

Contrasting Inclusions

Inclusion 1: Davey loamy fine sand, 2 to 8 percent slopes--6 percent

Inclusion 2: Schamp loam, 4 to 15 percent slopes--5 percent

Inclusion 3: Emagert silt loam, 0 to 2 percent slopes--4 percent

Map Unit Setting

Landscape position: Bolsons

Macyflet--Landform: Lake plains

Indian Creek--Landform: Fan skirts

Inclusion 1--Landform: Beach terraces

Inclusion 2--Landform: Hills, geomorphic position: toeslope

Inclusion 3--Landform: Stream terraces

Major Component Description**Macyflet Series**

Elevation: 5,700 to 6,000 feet

Precipitation: About 12 inches

Air temperature: About 43 degrees

Frost-free season: About 80 days

Surface layer texture: Silt loam

Drainage class: Moderately well drained

Dominant parent material: Alluvium derived from lacustrine sediments

Indian Creek Series

Elevation: 5,700 to 6,000 feet

Precipitation: About 11 inches

Air temperature: About 48 degrees

Frost-free season: About 90 days

Surface rock fragments: 20 percent cobbles, 15 percent gravel

Surface layer texture: Very cobbly loam

Drainage class: Well drained

Dominant parent material: Alluvium derived from mixed rocks

Dominant Present Vegetation

Macyflet: Cusick bluegrass, Douglas rabbitbrush, Thurber needlegrass, alkali sagebrush, basin wildrye

Indian Creek: Thurber needlegrass, bluegrass, low sagebrush

Inclusion 1: Basin big sagebrush, needlegrass

Inclusion 2: Thurber needlegrass, Wyoming big sagebrush

Inclusion 3: Basin big sagebrush, basin wildrye

Ecological Site

Macyflet: 023XY090NV

Indian Creek: 023XY059NV

Inclusion 1: 023XY051NV

Inclusion 2: 023XY006NV

Inclusion 3: 023XY009NV

1015--Powlow very gravelly loam, 2 to 15 percent slopes**Composition****Major Components**

Powlow very gravelly loam, 2 to 15 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1: Old Camp very cobbly loam, 4 to 15 percent slopes--6 percent

Inclusion 2: Saraph very gravelly sandy loam, 8 to 30 percent slopes--4 percent

Inclusion 3: Powlow very gravelly loam, 15 to 30 percent slopes--3 percent

Inclusion 4: Esmold very gravelly fine sandy loam, 2 to 15 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus and adjacent bolsons
Powwow--Landform Alluvia fans
Inclusion 1--Landform Plateaus geomorphic position summit
Inclusion 2--Landform Plateaus geomorphic position summit
Inclusion 3--Landform Fan remnants geomorphic position backslope
Inclusion 4--Landform Fan remnants geomorphic position summit

Major Component Description**Powwow Series**

Elevation 5 600 to 5 800 feet
Precipitation About 11 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 2 percent cobbles, 40 percent grave
Surface layer texture Very gravelly loam
Drainage class Well drained
Dominant parent material Alluvium derived from volcanic rocks

Dominant Present Vegetation

Powwow Thurber needlegrass, big sagebrush, bluebunch wheatgrass
Inclusion 1 Thurber needlegrass, Wyoming big sagebrush
Inclusion 2 Wyoming big sagebrush, bluegrass
Inclusion 3 Thurber needlegrass, big sagebrush, bluebunch wheatgrass
Inclusion 4 Thurber needlegrass, bluegrass, low sagebrush

Ecological Site

Powwow 023XY020NV
Inclusion 1 023XY006NV
Inclusion 2 023XY006NV
Inclusion 3 023XY020NV
Inclusion 4 023XY059NV

1020--Bearbutte-Welch association**Composition****Major Components**

Bearbutte fine sandy loam, 4 to 15 percent slopes--75 percent
Welch loam, 0 to 4 percent slopes, rarely flooded--15 percent

Contrasting Inclusions

Inclusion 1 Ashdoo very gravelly fine sandy loam, 4 to 30 percent slopes--6 percent
Inclusion 2 Ashdoo very gravelly sandy loam, 4 to 30 percent slopes--3 percent
Inclusion 3 Surprise gravelly loamy sand, 2 to 15 percent slopes--1 percent

Map Unit Setting

Landscape position Hills and intermontane basins
Bearbutte--Landform Hills

Welch--Landform Drainageways

Inclusion 1--Landform Hills, geomorphic position backslope aspect south
Inclusion 2--Landform Hills, geomorphic position backslope aspect north
Inclusion 3--Landform Inset fans

Major Component Description**Bearbutte Series**

Elevation 6 000 to 6 200 feet
Precipitation About 13 inches
Air temperature About 43 degrees
Frost-free season About 80 days
Surface rock fragments 10 percent gravel
Surface layer texture Fine sandy loam
Drainage class Well drained
Dominant parent material Colluvium derived from tuffaceous rocks

Welch Series

Elevation 6 000 to 6 200 feet
Precipitation About 14 inches
Air temperature About 43 degrees
Frost-free season About 80 days
Surface layer texture Loam
Drainage class Very poorly drained
Dominant parent material Alluvium derived from volcanic rocks

Dominant Present Vegetation

Bearbutte Idaho fescue, Thurber needlegrass, antelope bitterbrush, mountain big sagebrush
Welch Nevada bluegrass, sedge
Inclusion 1 Idaho fescue, Thurber needlegrass, bluebunch wheatgrass, low sagebrush
Inclusion 2 Idaho fescue, Thurber needlegrass, low sagebrush
Inclusion 3 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Ecological Site

Bearbutte 023XY066NV
Welch 023XY013NV
Inclusion 1 023XY078NV
Inclusion 2 023XY079NV
Inclusion 3 023XY020NV

1025--Mesman fine sandy loam, 0 to 4 percent slopes**Composition****Major Components**

Mesman fine sandy loam, 0 to 4 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Paypoint gravelly fine sandy loam, 0 to 2 percent slopes--6 percent
Inclusion 2 Langston gravelly sandy loam, 2 to 8 percent slopes--5 percent
Inclusion 3 McWatt extremely stony loam, 4 to 8 percent slopes--2 percent

Inclusion 4: Valmy sandy loam, 2 to 4 percent slopes--2 percent

Map Unit Setting

Landscape position: Bolsons
 Mesman--Landform: Lake terraces
 Inclusion 1--Landform: Lagoons
 Inclusion 2--Landform: Longshore bars (relict)
 Inclusion 3--Landform: Beach terraces
 Inclusion 4--Landform: Beach terraces

Major Component Description

Mesman Series

Elevation: 4 580 to 4 600 feet
Precipitation: About 9 inches
Air temperature: About 47 degrees
Frost-free season: About 100 days
Surface layer texture: Fine sandy loam
Drainage class: Well drained
Dominant parent material: Alluvium derived from lacustrine sediments

Dominant Present Vegetation

Mesman: Thurber needlegrass, Wyoming big sagebrush
 Inclusion 1: Basin big sagebrush, basin wildrye, bottlebrush squirrel tail
 Inclusion 2: Thurber needlegrass, Wyoming big sagebrush
 Inclusion 3: Wyoming big sagebrush, bottlebrush squirrel tail
 Inclusion 4: Basin wildrye, big sagebrush, black greasewood

Ecological Site

Mesman: 023XY006NV
 Inclusion 1: 023XY082NV
 Inclusion 2: 023XY006NV
 Inclusion 3: 023XY006NV
 Inclusion 4: 024XY022NV

1030--Zorravista fine sand, 4 to 15 percent slopes

Composition

Major Components

Zorravista fine sand, 4 to 15 percent slopes--90 percent

Contrasting Inclusions

Inclusion 1: Davey loamy fine sand, 2 to 15 percent slopes--6 percent
 Inclusion 2: Corral loamy fine sand, 2 to 15 percent slopes--3 percent
 Inclusion 3: Buffaran stony loam, 2 to 8 percent slopes--1 percent

Map Unit Setting

Landscape position: Intermontane basins
 Zorravista--Landform: Dunes
 Inclusion 1--Landform: Beach terraces
 Inclusion 2--Landform: Pediments
 Inclusion 3--Landform: Alluvial fans

Major Component Description

Zorravista Series

Elevation: 5 800 to 5 900 feet
Precipitation: About 9 inches
Air temperature: About 48 degrees
Frost-free season: About 90 days
Surface layer texture: Fine sand
Drainage class: Excessively drained
Dominant parent material: Eolian material

Dominant Present Vegetation

Zorravista: Indian ricegrass, basin big sagebrush, needleandthread
 Inclusion 1: Indian ricegrass, basin big sagebrush, needleandthread
 Inclusion 2: Indian ricegrass, needleandthread, Wyoming big sagebrush
 Inclusion 3: Thurber needlegrass, Wyoming big sagebrush, bottlebrush squirrel tail

Ecological Site

Zorravista: 023XY011NV
 Inclusion 1: 023XY051NV
 Inclusion 2: 023XY051NV
 Inclusion 3: 023XY006NV

1035--Ninemile-Madeline-Crocán association

Composition

Major Components

Ninemile: very cobbly loam, 4 to 30 percent slopes--40 percent
 Madeline: very stony loam, 4 to 30 percent slopes--25 percent
 Crocán: extremely stony loam, 2 to 15 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1: Vertic Palexerolls, very-fine, montmorillonitic, frigid, very cobbly loam, 0 to 8 percent slopes--8 percent
 Inclusion 2: Badgercamp bouldery loam, 4 to 30 percent slopes--4 percent
 Inclusion 3: Typic Argixerolls, fine, montmorillonitic, frigid, very stony loam, 15 to 30 percent slopes--3 percent
 Inclusion 4: Newlands stony loam, 8 to 30 percent slopes--2 percent

Map Unit Setting

Landscape position: Plateaus
 Ninemile--Landform: Plateaus
 Madeline--Landform: Plateaus, geomorphic position: backslope
 Crocán--Landform: Plateaus, geomorphic position: shoulder
 Inclusion 1--Landform: Plateaus, geomorphic position: backslope
 Inclusion 2--Landform: Plateaus, geomorphic position: shoulder
 Inclusion 3--Landform: Plateaus, geomorphic position: backslope

Inclusion 4--Landform: Plateaus, geomorphic position: backslope; aspect: north

Major Component Description

Ninemile Series

Elevation: 6 100 to 6 500 feet

Precipitation: About 14 inches

Air temperature: About 44 degrees

Frost-free season: About 75 days

Surface rock fragments: 20 percent cobbles, 30 percent gravel

Surface layer texture: Very cobbly loam

Drainage class: Well drained

Dominant parent material: Residuum derived from volcanic rocks

Madeline Series

Elevation: 6 100 to 6 500 feet

Precipitation: About 13 inches

Air temperature: About 44 degrees

Frost-free season: About 80 days

Surface layer texture: Very stony loam

Drainage class: Well drained

Dominant parent material: Residuum derived from volcanic rocks

Crocen Series

Elevation: 6 100 to 6 500 feet

Precipitation: About 14 inches

Air temperature: About 43 degrees

Frost-free season: About 70 days

Surface rock fragments: 10 percent stones and boulders, 15 percent cobbles, 20 percent gravel

Surface layer texture: Extremely stony loam

Drainage class: Well drained

Dominant parent material: Residuum derived from volcanic rocks

Dominant Present Vegetation

Ninemile: Idaho fescue, bluebunch wheatgrass, low sagebrush

Madeline: Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush

Crocen: Cusick bluegrass, Idaho fescue, bluebunch wheatgrass, low sagebrush, western juniper

Inclusion 1: Idaho fescue, low sagebrush

Inclusion 2: Bluegrass, curlyleaf mountainmahogany, mountain big sagebrush

Inclusion 3: Idaho fescue, bluebunch wheatgrass,

bluegrass, mountain big sagebrush, western juniper

Inclusion 4: Idaho fescue, mountain big sagebrush, needlegrass, snowberry

Ecological Site

Ninemile: 023XY017NV

Madeline: 023XY015NV

Crocen: 023XY095NV

Inclusion 1: 023XY014NV

Inclusion 2: 023XY026NV

Inclusion 3: 023XY024NV

Inclusion 4: 023XY065NV

1036--Tinpan-Ninemile association

Composition

Major Components

Tinpan: extremely cobbly loam, 0 to 8 percent slopes--50 percent

Ninemile: very cobbly loam, 2 to 15 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1: Karlo: very cobbly clay, 0 to 4 percent slopes--9 percent

Inclusion 2: Crocan: extremely stony loam, 2 to 15 percent slopes--4 percent

Inclusion 3: Vertic Palexerolls, very-fine montmorillonitic frigid very stony loam, 2 to 8 percent slopes--2 percent

Map Unit Setting

Landscape position: Plateaus

Tinpan--Landform: Plateaus, shape of slope: concave

Ninemile--Landform: Plateaus, shape of slope: convex

Inclusion 1--Landform: Plateaus, shape of slope: concave

Inclusion 2--Landform: Plateaus, geomorphic position: shoulder

Inclusion 3--Landform: Plateaus, geomorphic position: summit, shape of slope: concave

Major Component Description

Tinpan Series

Elevation: 6 000 to 6 800 feet

Precipitation: About 14 inches

Air temperature: About 43 degrees

Frost-free season: About 70 days

Surface rock fragments: 40 percent cobbles, 20 percent gravel

Surface layer texture: Extremely cobbly loam

Drainage class: Well drained

Dominant parent material: Alluvium derived from volcanic rocks

Ninemile Series

Elevation: 6 000 to 6 800 feet

Precipitation: About 14 inches

Air temperature: About 44 degrees

Frost-free season: About 75 days

Surface rock fragments: 20 percent cobbles, 30 percent gravel

Surface layer texture: Very cobbly loam

Drainage class: Well drained

Dominant parent material: Residuum derived from volcanic rocks

Dominant Present Vegetation

Tinpan: Idaho fescue, bluebunch wheatgrass, bluegrass, low sagebrush

Ninemile: Idaho fescue, bluebunch wheatgrass, low sagebrush

Inclusion 1: Bluegrass, low sagebrush, rubber rabbitbrush

Inclusion 2: Idaho fescue, bluebunch wheatgrass, low sagebrush, western juniper

Inclusion 3: Idaho fescue, bluegrass, low sagebrush

Ecological Site

Tnpian 023XY017NV
 Ninemile 023XY017NV
 inclusion 1 023XY001NV
 inclusion 2 023XY095NV
 inclusion 3 023XY014NV

1040--Langston gravelly sandy loam, 2 to 8 percent slopes**Composition****Major Components**

Langston gravelly sandy loam, 2 to 8 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Davey loamy fine sand, 2 to 15 percent slopes--8 percent

Inclusion 2 Longs silty clay loam, 0 to 2 percent slopes--7 percent

Map Unit Setting

Landscape position Intermontane basins
Langston--Landform Longshore bars (relict)
Inclusion 1--Landform Beach terraces
Inclusion 2--Landform Lake terraces, position on slope lower

Major Component Description**Langston Series**

Elevation 5 400 to 5 700 feet

Precipitation About 9 inches

Air temperature About 47 degrees

Frost-free season About 90 days

Surface rock fragments 25 percent gravel

Surface layer texture Gravelly sandy loam

Drainage class Well drained

Dominant parent material Alluvium derived from mixed rocks over lacustrine sediments

Dominant Present Vegetation

Langston Wyoming big sagebrush bottlebrush squirreltail

Inclusion 1 Basin big sagebrush needleandthread

Inclusion 2 Big sagebrush black greasewood

Ecological Site

Langston 023XY006NV
 inclusion 1 023XY051NV
 inclusion 2 024XY022NV

1041--Langston-Old Camp-Paypoint association**Composition****Major Components**

Langston gravelly sandy loam, 2 to 15 percent slopes--45 percent

Old Camp very gravelly loam 4 to 15 percent slopes--30 percent

Paypoint gravelly fine sandy loam 0 to 2 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Davey loamy fine sand 2 to 8 percent slopes--5 percent

Inclusion 2 Weezweed loam, 0 to 2 percent slopes--3 percent

Inclusion 3 Emagert loam, 0 to 2 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus and adjacent bolsons

Langston--Landform Longshore bars (relict)

Old Camp--Landform Plateaus

Paypoint--Landform Lagoons

Inclusion 1--Landform Beach terraces

Inclusion 2--Landform Stream terraces

Inclusion 3--Landform Stream terraces position on slope lower

Major Component Description**Langston Series**

Elevation 5 700 to 5 800 feet

Precipitation About 9 inches

Air temperature About 47 degrees

Frost-free season About 90 days

Surface rock fragments 25 percent gravel

Surface layer texture Gravelly sandy loam

Drainage class Well drained

Dominant parent material Alluvium derived from mixed rocks over lacustrine sediments

Old Camp Series

Elevation 5 700 to 5 800 feet

Precipitation About 10 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 5 percent cobbles, 40 percent gravel

Surface layer texture Very gravelly loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Paypoint Series*Elevation* 5 700 to 5 800 feet*Precipitation* About 9 inches*Air temperature* About 47 degrees*Frost-free season* About 90 days*Surface rock fragments* 15 percent gravel*Surface layer texture* Gravelly fine sandy loam*Drainage class* Well drained*Dominant parent material* Alluvium derived from mixed rocks, loess and volcanic ash**Dominant Present Vegetation**

Langston Thurber needlegrass, Wyoming big sagebrush, bottlebrush squirreltail

Old Camp Thurber needlegrass, Wyoming big sagebrush

Paypoint Thurber needlegrass, basin wildrye, big sagebrush, bottlebrush squirreltail, rubber rabbitbrush

Inclusion 1 Indian needlegrass, basin big sagebrush, needlegrass

Inclusion 2 Basin big sagebrush, basin wildrye, rubber rabbitbrush

Inclusion 3 Basin big sagebrush, basin wildrye, rubber rabbitbrush

Ecological Site

Langston 023XY006NV

Old Camp 023XY006NV

Paypoint 023XY082NV

Inclusion 1 023XY051NV

Inclusion 2 023XY005NV

Inclusion 3 023XY009NV

1045--Paypoint-Langston association**Composition****Major Components**

Paypoint gravelly fine sandy loam, 0 to 2 percent slopes--60 percent

Langston gravelly sandy loam, 2 to 8 percent slopes--25 percent

Contrasting Inclusions

Inclusion 1 Longdis silty clay loam, 0 to 2 percent slopes--9 percent

Inclusion 2 Davey loamy fine sand, 0 to 4 percent slopes--5 percent

Inclusion 3 Andic Haploxeroils, fine, montmorillonitic, mesic silt loam, 0 to 2 percent slopes--1 percent

Map Unit Setting*Landscape position* Intermontane basins

Paypoint--Landform: Lagoons

Langston--Landform: Longshore bars (relict)

Inclusion 1--Landform: Lake terraces, position on slope lower

Inclusion 2--Landform: Beach terraces

Inclusion 3--Landform: Drainageways

Major Component Description**Paypoint Series***Elevation* 5 500 to 5 700 feet*Precipitation* About 9 inches*Air temperature* About 47 degrees*Frost-free season* About 90 days*Surface rock fragments* 15 percent gravel*Surface layer texture* Gravelly fine sandy loam*Drainage class* Well drained*Dominant parent material* Alluvium derived from mixed rocks, loess and volcanic ash**Langston Series***Elevation* 5 500 to 5 700 feet*Precipitation* About 9 inches*Air temperature* About 47 degrees*Frost-free season* About 90 days*Surface rock fragments* 25 percent gravel*Surface layer texture* Gravelly sandy loam*Drainage class* Well drained*Dominant parent material* Alluvium derived from mixed rocks over lacustrine sediments**Dominant Present Vegetation**

Paypoint Douglas rabbitbrush, basin wildrye, big sagebrush, bottlebrush squirreltail, rubber rabbitbrush

Langston Wyoming big sagebrush, bottlebrush squirreltail

Inclusion 1 Big sagebrush, black greasewood

Inclusion 2 Basin big sagebrush, needleandthread

Inclusion 3 Basin big sagebrush, basin wildrye

Ecological Site

Paypoint 023XY082NV

Langston 023XY006NV

Inclusion 1 024XY022NV

Inclusion 2 023XY051NV

Inclusion 3 023XY005NV

1050--Skullwak silt loam, 0 to 2 percent slopes**Composition****Major Components**

Skullwak silt loam, 0 to 2 percent slopes--90 percent

Contrasting Inclusions

Inclusion 1 Uplike silt loam, 0 to 2 percent slopes--6 percent

Inclusion 2 Longdis fine sandy loam, 0 to 2 percent slopes--4 percent

Map Unit Setting*Landscape position* Bolsons

Skullwak--Landform: Basin floors

Inclusion 1--Landform: Lake terraces

Inclusion 2--Landform: Lake terraces

Major Component Description**Skullwak Series***Elevation* 5 500 to 5 600 feet*Precipitation* About 10 inches*Air temperature* About 45 degrees*Frost-free season* About 90 days*Surface layer texture* Silt loam*Drainage class* Poorly drained

Dominant parent material: Alluvium derived from lacustrine sediments

Dominant Present Vegetation

Skullwag Nevada bluegrass, alkali grass, inland saltgrass
inclusion 1 Black greasewood, inland saltgrass
inclusion 2 Big sagebrush, black greasewood

Ecological Site

Skullwag 023XY002NV
Inclusion 1 023XY010NV
Inclusion 2 024XY022NV

1055--Devada-Hapgood-Hart Camp association

Composition

Major Components

Devada very gravelly loam, 15 to 50 percent slopes--40 percent
Hapgood very gravelly loam, 15 to 30 percent slopes--30 percent
Hart Camp stony loam, 4 to 30 percent slopes--15 percent
Contrasting Inclusions
Inclusion 1 Lithic Argixerolls, loamy-skeletal, mixed, frigid, very gravelly loam, 15 to 50 percent slopes--7 percent
Inclusion 2 Nemile very stony loam, 15 to 30 percent slopes--4 percent
Inclusion 3 Vitricrandic Haploxerolls, Ashy mesic loam, 2 to 15 percent slopes--4 percent

Map Unit Setting

Landscape position: Plateaus and mountains
Devada--Landform: Mountains, geomorphic position: backslope, aspect south
Hapgood--Landform: Plateaus, geomorphic position: backslope, shape of slope concave, aspect north
Hart Camp--Landform: Plateaus, geomorphic position: toeslope, position on slope lower, aspect south
Inclusion 1--Landform: Mountains, geomorphic position: summit, position on slope upper
Inclusion 2--Landform: Plateaus, geomorphic position: backslope
Inclusion 3--Landform: inset fans, shape of slope concave

Major Component Description

Devada Series

Elevation: 6,300 to 6,800 feet
Precipitation: About 12 inches
Air temperature: About 45 degrees
Frost-free season: About 90 days
Surface rock fragments: 1 percent stones and boulders, 2 percent cobbles, 40 percent gravel
Surface layer texture: Very gravelly loam
Drainage class: Well drained
Dominant parent material: Residuum derived from volcanic rocks

Hapgood Series

Elevation: 6,300 to 6,800 feet
Precipitation: About 14 inches

Air temperature: About 42 degrees

Frost-free season: About 60 days

Surface rock fragments: 2 percent cobbles, 40 percent gravel

Surface layer texture: Very gravelly loam

Drainage class: Well drained

Dominant parent material: Residuum and colluvium derived from volcanic rocks

Hart Camp Series

Elevation: 6,300 to 6,800 feet

Precipitation: About 11 inches

Air temperature: About 43 degrees

Frost-free season: About 70 days

Surface rock fragments: 2 percent stones and boulders, 5 percent cobbles, 15 percent gravel

Surface layer texture: Stony loam

Drainage class: Well drained

Dominant parent material: Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Devada Thurber needlegrass, bluebunch wheatgrass, low sagebrush
Hapgood Idaho fescue, mountain big sagebrush, mountain brome, snowberry
Hart Camp Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
Inclusion 1 Idaho fescue, low sagebrush
Inclusion 2 Idaho fescue, bluebunch wheatgrass, low sagebrush
Inclusion 3 Basin wildrye, big sagebrush

Ecological Site

Devada 023XY031NV
Hapgood 023XY065NV
Hart Camp 023XY015NV
Inclusion 1 023XY008NV
Inclusion 2 023XY017NV
Inclusion 3 023XY009NV

1060--Bombadil-Chime association

Composition

Major Components

Bombadil very stony loam, 4 to 30 percent slopes--60 percent
Chime gravelly loam, 2 to 15 percent slopes--25 percent

Contrasting Inclusions

Inclusion 1 Corral very stony loam, 15 to 30 percent slopes--7 percent
Inclusion 2 Schamp loam, 2 to 15 percent slopes--5 percent
Inclusion 3 McConnel gravelly sandy loam, 0 to 2 percent slopes, occasionally flooded--3 percent

Map Unit Setting

Landscape position: Plateaus
Bombadil--Landform: Plateaus, aspect south
Chime--Landform: Plateaus, geomorphic position: backslope

Inclusion 1--Landform: Plateaus, geomorphic position: backslope, aspect: northeast
 Inclusion 2--Landform: Hills
 Inclusion 3--Landform: Inset fans

Major Component Description

Bombadil Series

Elevation: 4,700 to 5,000 feet
 Precipitation: About 10 inches
 Air temperature: About 45 degrees
 Frost-free season: About 90 days
 Surface rock fragments: 5 percent stones and boulders; 10 percent cobbles; 25 percent gravel
 Surface layer texture: Very stony loam
 Drainage class: Well drained
 Dominant parent material: Residuum derived from volcanic rocks

Chime Series

Elevation: 4,700 to 5,000 feet
 Precipitation: About 9 inches
 Air temperature: About 47 degrees
 Frost-free season: About 100 days
 Surface rock fragments: 20 percent gravel
 Surface layer texture: Gravelly loam
 Drainage class: Well drained
 Dominant parent material: Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Bombadil: Wyoming big sagebrush, spiny hopsage
 Chime: Wyoming big sagebrush, spiny hopsage
 Inclusion 1: Thurber needlegrass, Wyoming big sagebrush
 Inclusion 2: Thurber needlegrass, Wyoming big sagebrush
 Inclusion 3: Basin big sagebrush, basin wildrye

Ecological Site

Bombadil: 024XY020NV
 Chime: 024XY020NV
 Inclusion 1: 023XY006NV
 Inclusion 2: 023XY006NV
 Inclusion 3: 023XY005NV

1061--Old Camp gravelly loam, 8 to 30 percent slopes

Composition

Major Components

Old Camp: gravelly loam, 8 to 30 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1: Schamp very stony loam, 4 to 15 percent slopes--7 percent
 Inclusion 2: Corral very stony loam, 15 to 30 percent slopes--4 percent
 Inclusion 3: Bombadil very gravelly loam, 4 to 15 percent slopes--4 percent

Map Unit Setting

Landscape position: Plateaus
 Old Camp--Landform: Plateaus

Inclusion 1--Landform: Hills, geomorphic position: backslope, position on slope: lower
 Inclusion 2--Landform: Plateaus, geomorphic position: backslope
 Inclusion 3--Landform: Plateaus, position on slope: lower, aspect: southwest

Major Component Description

Old Camp Series

Elevation: 5,200 to 5,500 feet
 Precipitation: About 10 inches
 Air temperature: About 45 degrees
 Frost-free season: About 90 days
 Surface rock fragments: 5 percent cobbles; 20 percent gravel
 Surface layer texture: Gravelly loam
 Drainage class: Well drained
 Dominant parent material: Residuum derived from volcanic rocks

Dominant Present Vegetation

Old Camp: Thurber needlegrass, Wyoming big sagebrush
 Inclusion 1: Thurber needlegrass, Wyoming big sagebrush
 Inclusion 2: Thurber needlegrass, Wyoming big sagebrush
 Inclusion 3: Wyoming big sagebrush, spiny hopsage

Ecological Site

Old Camp: 023XY006NV
 Inclusion 1: 023XY006NV
 Inclusion 2: 023XY006NV
 Inclusion 3: 024XY020NV

1062--Old Camp-Corral association

Composition

Major Components

Old Camp: very cobbly loam, 4 to 15 percent slopes--50 percent

Corral: stony loam, 4 to 15 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1: Pachic Argixerolls, loamy-skeletal, mixed, frigid, very stony loam, 15 to 30 percent slopes--7 percent
 Inclusion 2: Lithic Xerochhaplargids, loamy, mixed, mesic, very cobbly loam, 4 to 15 percent slopes--5 percent
 Inclusion 3: Bucklake very cobbly loam, 15 to 30 percent slopes--3 percent

Map Unit Setting

Landscape position: Plateaus

Old Camp--Landform: Plateaus, geomorphic position: summit

Corral--Landform: Plateaus, geomorphic position: backslope

Inclusion 1--Landform: Plateaus, geomorphic position: backslope, aspect: north

Inclusion 2--Landform: Plateaus, geomorphic position: shoulder

Inclusion 3--Landform: Plateaus, geomorphic position: backslope

Major Component Description**Old Camp Series***Elevation* 5,500 to 5,700 feet*Precipitation* About 10 inches*Air temperature* About 45 degrees*Frost-free season* About 90 days*Surface rock fragments* 1 percent stones and boulders, 25 percent cobbles, 15 percent gravel*Surface layer texture* Very cobbly loam*Drainage class* Well drained*Dominant parent material* Residuum derived from volcanic rocks**Corral Series***Elevation* 5,500 to 5,700 feet*Precipitation* About 9 inches*Air temperature* About 45 degrees*Frost-free season* About 80 days*Surface rock fragments* 3 percent stones and boulders, 10 percent cobbles, 10 percent gravel*Surface layer texture* Stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from tuffaceous rocks**Dominant Present Vegetation**

Old Camp Thurber needlegrass, Wyoming big sagebrush

Corral Thurber needlegrass, Wyoming big sagebrush

Inclusion 1 Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Inclusion 2 Thurber needlegrass, low sagebrush

Inclusion 3 Big sagebrush, bluebunch wheatgrass

Ecological Site

Old Camp 023XY006NV

Corral 023XY006NV

Inclusion 1 023XY007NV

Inclusion 2 023XY059NV

Inclusion 3 023XY039NV

Inclusion 1 Landform Hills, geomorphic position toeslope

Inclusion 2 Landform Plateaus, geomorphic position backslope, aspect north

Inclusion 3 Landform Plateaus, geomorphic position backslope

Inclusion 4 Landform Plateaus, geomorphic position shoulder

Major Component Description**Old Camp Series***Elevation* 5,500 to 6,000 feet*Precipitation* About 10 inches*Air temperature* About 45 degrees*Frost-free season* About 90 days*Surface rock fragments* 5 percent stones and boulders, 10 percent cobbles, 20 percent gravel*Surface layer texture* Very stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from volcanic rocks**Dominant Present Vegetation**

Old Camp Thurber needlegrass, Wyoming big sagebrush

Inclusion 1 Thurber needlegrass, Wyoming big sagebrush, bluegrass

Inclusion 2 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 3 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 4 Cusick bluegrass, Nevada bluegrass, bluebunch wheatgrass, low sagebrush, western juniper

Ecological Site

Old Camp 023XY006NV

Inclusion 1 023XY006NV

Inclusion 2 023XY020NV

Inclusion 3 023XY039NV

Inclusion 4 023XY091NV

1065--Old Camp-Reywat-Rubble land association**Composition****Major Components**

Old Camp extremely stony loam, 30 to 75 percent slopes--40 percent

Reywat extremely stony loam, 30 to 75 percent slopes--30 percent

Rubble land fragmental material, 30 to 75 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Lithic Xeric Tomorthents, loamy-skeletal mixed (calcareous) mesic very stony sandy loam, 30 to 75 percent slopes--7 percent

Inclusion 2 Wylo very stony fine sandy loam, 4 to 30 percent slopes--5 percent

Inclusion 3 Weezweed loam, 0 to 2 percent slopes, 2 percent

Inclusion 4 Wetvit fine sandy loam, 0 to 2 percent slopes, occasionally flooded--1 percent

1063--Old Camp very stony loam, 8 to 30 percent slopes**Composition****Major Components**

Old Camp very stony loam, 8 to 30 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Buffaran very stony loam, 4 to 15 percent slopes--5 percent

Inclusion 2 Zymans very cobbly loam, 15 to 30 percent slopes--4 percent

Inclusion 3 Reywat very stony loam, 30 to 50 percent slopes--3 percent

Inclusion 4 Bldm extremely stony loam, 2 to 15 percent slopes--3 percent

Map Unit Setting*Landscape position* Plateaus and hills

Old Camp--Landform Plateaus, geomorphic position summit

Map Unit Setting

Landscape position: Plateaus

Old Camp--Landform: Plateaus, geomorphic position
backslope position on slope lower aspect south

Reywat--Landform: Plateaus, geomorphic position
backslope position on slope upper aspect south

Rubble land--Landform: Plateaus

Inclusion 1--Landform: Plateaus, geomorphic position
shoulder aspect south

Inclusion 2--Landform: Plateaus, geomorphic position
backslope position on slope upper shape of slope
convex

Inclusion 3--Landform: Stream terraces

Inclusion 4--Landform: Stream terraces

Major Component Description**Old Camp Series**

Elevation: 5 000 to 6 000 feet

Precipitation: About 10 inches

Air temperature: About 45 degrees

Frost-free season: About 90 days

Surface rock fragments: 15 percent stones and boulders,
20 percent cobbles, 20 percent gravel

Surface layer texture: Extremely stony loam

Drainage class: Well drained

Dominant parent material: Residuum and colluvium
derived from volcanic rocks

Reywat Series

Elevation: 5 000 to 6 000 feet

Precipitation: About 12 inches

Air temperature: About 45 degrees

Frost-free season: About 80 days

Surface rock fragments: 30 percent stones and boulders,
10 percent cobbles, 20 percent gravel

Surface layer texture: Extremely stony loam

Drainage class: Well drained

Dominant parent material: Residuum and colluvium
derived from volcanic rocks

Rubble land Miscellaneous Area

Elevation: 5 000 to 6 000 feet

Surface layer texture: Fragmental material

Drainage class: Excessively drained

Dominant Present Vegetation

Old Camp: Thurber needlegrass, Wyoming big sagebrush

Reywat: Thurber needlegrass, big sagebrush, bluebunch
wheatgrass

Rubble land: None

Inclusion 1: Indian ricegrass, Wyoming big sagebrush,
basin wildrye, bottlebrush squirreltail, erogonum

Inclusion 2: Sandberg bluegrass, Thurber needlegrass,
bluebunch wheatgrass, sagebrush

Inclusion 3: Basin big sagebrush, basin wildrye, rubber
rabbitbrush

Inclusion 4: Baltic rush, Nevada bluegrass, meadow barley

Ecological Site

Old Camp: 023XY006NV

Reywat: 023XY039NV

Rubble land: none

Inclusion 1: 023XY088NV

Inclusion 2: 023XY037NV

Inclusion 3: 023XY005NV

Inclusion 4: 023XY013NV

1070--Oreneva very gravelly loam, 2 to 15 percent slopes**Composition****Major Components**

Oreneva very gravelly loam, 2 to 15 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1: Langston very gravelly sandy loam, 2 to 8 percent slopes--8 percent

Inclusion 2: Paypoint gravelly fine sandy loam, 0 to 2 percent slopes--5 percent

Inclusion 3: Surprise gravelly loamy sand, 2 to 8 percent slopes--2 percent

Map Unit Setting

Landscape position: Plateaus and adjacent bolsons

Oreneva--Landform: Plateaus, geomorphic position
backslope

Inclusion 1--Landform: Longshore bars (relict)

Inclusion 2--Landform: Lagoons

Inclusion 3--Landform: Beach terraces

Major Component Description**Oreneva Series**

Elevation: 5 400 to 5 500 feet

Precipitation: About 11 inches

Air temperature: About 45 degrees

Frost-free season: About 80 days

Surface rock fragments: 40 percent gravel

Surface layer texture: Very gravelly loam

Drainage class: Well drained

Dominant parent material: Residuum and colluvium
derived from volcanic rocks

Dominant Present Vegetation

Oreneva: Thurber needlegrass, big sagebrush, bluebunch
wheatgrass, bluegrass

Inclusion 1: Thurber needlegrass, big sagebrush

Inclusion 2: Thurber needlegrass, Wyoming big
sagebrush, basin wildrye

Inclusion 3: Thurber needlegrass, big sagebrush,
bluebunch wheatgrass

Ecological Site

Oreneva 023XY020NV
 inclusion 1 023XY006NV
 inclusion 2 023XY082NV
 Inclusion 3 023XY020NV

1075--Surprise gravelly loamy sand, 2 to 15 percent slopes**Composition****Major Components**

Surprise gravelly loamy sand 2 to 15 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Davey loamy fine sand 2 to 15 percent slopes--7 percent
 inclusion 2 Emagert loam 0 to 4 percent slopes--4 percent
 inclusion 3 Wetvit loam 0 to 4 percent slopes--4 percent

Map Unit Setting

Landscape position Fan piedmonts
Surprise--Landform Alluvia fans
Inclusion 1--Landform inset fans
inclusion 2--Landform Stream terraces
inclusion 3--Landform Inset fans

Major Component Description**Surprise Series**

Elevation 5 500 to 5 600 feet
Precipitation About 12 inches
Air temperature About 48 degrees
Frost-free season About 90 days
Surface rock fragments 20 percent gravel
Surface layer texture Gravelly loamy sand
Drainage class Well drained
Dominant parent material Alluvium derived from volcanic rocks

Dominant Present Vegetation

Surprise Thurber needlegrass Wyoming big sagebrush
 basin big sagebrush bluebunch wheatgrass
 inclusion 1 Indian ricegrass basin big sagebrush
 needleandthread
 inclusion 2 Basin big sagebrush basin wildrye
 inclusion 3 Bluegrass sedge

Ecological Site

Surprise 023XY020NV
 inclusion 1 023XY051NV
 inclusion 2 023XY009NV
 inclusion 3 023XY089NV

1080--Bucklake-Rock outcrop-Corral association**Composition****Major Components**

Bucklake very stony loam 30 to 50 percent slopes--50 percent
 Rock outcrop--20 percent
 Corral very stony loam 30 to 50 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Pachic Argixerolis loamy-skeletal mixed
 frigid very stony loam 30 to 50 percent slopes--5 percent
 Inclusion 2 Reywat very stony loam 15 to 50 percent
 slopes--5 percent
 Inclusion 3 Devada very cobbly loam 15 to 30 percent
 slopes--5 percent

Map Unit Setting

Landscape position Plateaus
Bucklake--Landform Plateaus geomorphic position
 backslope position on slope upper aspect south
Rock outcrop--Landform Plateaus
Corral--Landform Plateaus geomorphic position
 backslope position on slope lower aspect south
Inclusion 1--Landform Plateaus geomorphic position
 backslope aspect north
Inclusion 2--Landform Plateaus geomorphic position
 backslope position on slope upper aspect east
Inclusion 3--Landform Plateaus geomorphic position
 shoulder

Major Component Description**Bucklake Series**

Elevation 5 300 to 5 500 feet
Precipitation About 11 inches
Air temperature About 45 degrees
Frost-free season About 80 days
Surface rock fragments 10 percent stones and boulders
 10 percent cobbles 20 percent gravel
Surface layer texture Very stony loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic
 rocks

Rock outcrop Miscellaneous Area

Elevation 5 300 to 5 500 feet
Drainage class Excessively drained

Corral Series

Elevation 5 300 to 5 500 feet
Precipitation About 9 inches
Air temperature About 45 degrees
Frost-free season About 80 days

Surface rock fragments. 15 percent stones and boulders
15 percent cobbles, 20 percent gravel
Surface layer texture. Very stony loam
Drainage class. Well drained
Dominant parent material. Residuum derived from
tuffaceous rocks

Dominant Present Vegetation

Bucklake. Big sagebrush, bluebunch wheatgrass
Rock outcrop. None
Corral. Thurber needlegrass, Wyoming big sagebrush
Inclusion 1. Idaho fescue, basin wildrye, big sagebrush
bluebunch wheatgrass
Inclusion 2. Basin wildrye, bluebunch wheatgrass,
mountain big sagebrush
Inclusion 3. Bluebunch wheatgrass, low sagebrush

Ecological Site

Bucklake. 023XY039NV
Corral. 023XY006NV
Rock outcrop. none
Inclusion 1. 023XY041NV
Inclusion 2. 023XY039NV
Inclusion 3. 023XY031NV

1081--Bucklake-Fiddler association

Composition

Major Components
Bucklake very cobbly loam, 15 to 50 percent slopes--65
percent
Fiddler very stony loam, 15 to 50 percent slopes--20
percent
Contrasting Inclusions
Inclusion 1. Devada very stony loam, 15 to 50 percent
slopes--8 percent
Inclusion 2. Menbo very stony loam, 15 to 50 percent
slopes--5 percent
Inclusion 3. Rock outcrop--2 percent

Map Unit Setting

Landscape position. Plateaus
Bucklake--Landform: Plateaus, geomorphic position:
backslope, aspect south
Fiddler--Landform: Plateaus, geomorphic position: summit,
position on slope: upper
Inclusion 1--Landform: Plateaus, geomorphic position:
backslope, position on slope: lower
Inclusion 2--Landform: Plateaus, geomorphic position:
backslope, aspect north
Inclusion 3--Landform: Plateaus

Major Component Description

Bucklake Series
Elevation. 5,700 to 6,100 feet
Precipitation. About 11 inches
Air temperature. About 45 degrees
Frost-free season. About 80 days
Surface rock fragments. 5 percent stones and boulders, 20
percent cobbles, 20 percent gravel

Surface layer texture. Very cobbly loam
Drainage class. Well drained
Dominant parent material. Residuum derived from volcanic
rocks

Fiddler Series

Elevation. 5,700 to 6,100 feet
Precipitation. About 13 inches
Air temperature. About 45 degrees
Frost-free season. About 80 days
Surface rock fragments. 10 percent stones and boulders,
15 percent cobbles, 20 percent gravel
Surface layer texture. Very stony loam
Drainage class. Well drained
Dominant parent material. Residuum derived from volcanic
rocks

Dominant Present Vegetation

Bucklake. Big sagebrush, bluebunch wheatgrass
Fiddler. Bluebunch wheatgrass, western juniper
Inclusion 1. Thurber needlegrass, low sagebrush
Inclusion 2. Idaho fescue, bluebunch wheatgrass,
mountain big sagebrush
Inclusion 3. None

Ecological Site

Bucklake. 023XY039NV
Fiddler. 023XY024NV
Inclusion 1. 023XY031NV
Inclusion 2. 023XY007NV
Inclusion 3. none

1083--Bucklake-Rubble land association

Composition

Major Components
Bucklake very cobbly loam, 30 to 50 percent slopes--50
percent
Rubble land fragmental material, 30 to 50 percent slopes--
35 percent
Contrasting Inclusions
Inclusion 1. Reywat very stony loam, 15 to 50 percent
slopes--7 percent
Inclusion 2. Devada very stony loam, 8 to 30 percent
slopes--5 percent
Inclusion 3. Dosie very stony loam, 30 to 50 percent
slopes--3 percent

Map Unit Setting

Landscape position. Plateaus
Bucklake--Landform: Plateaus, geomorphic position:
backslope, aspect south
Rubble land--Landform: Plateaus
Inclusion 1--Landform: Plateaus, geomorphic position:
backslope, position on slope: upper, aspect south
Inclusion 2--Landform: Plateaus, geomorphic position:
summit
Inclusion 3--Landform: Plateaus, geomorphic position:
backslope, aspect east

Major Component Description**Bucklake Series**

Elevation 5 600 to 6 400 feet

Precipitation About 11 inches

Air temperature About 45 degrees

Frost-free season About 80 days

Surface rock fragments 5 percent stones and boulders 20 percent cobbles 20 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Rubble land Miscellaneous Area

Elevation 5 600 to 6 400 feet

Surface layer texture Fragmental material

Drainage class Excessively drained

Dominant Present Vegetation

Bucklake Big sagebrush bluebunch wheatgrass

Rubble land None

Inclusion 1 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 2 Thurber needlegrass, bluebunch wheatgrass, low sagebrush

Inclusion 3 Basin wildrye bluebunch wheatgrass mountain big sagebrush

Ecological Site

Bucklake 023XY039NV

Rubble land none

Inclusion 1 023XY039NV

Inclusion 2 023XY031NV

Inclusion 3 023XY016NV

1090--Jaybee-Verdico association**Composition****Major Components**

Jaybee very cobbly loam 2 to 8 percent slopes--50 percent

Verdico very stony sandy loam, 4 to 16 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Emagert loam 0 to 4 percent slopes--7 percent

Inclusion 2 Reywat very stony loam, 4 to 15 percent slopes--5 percent

Inclusion 3 Toney very cobbly loam 8 to 30 percent slopes--2 percent

Inclusion 4 Schamp stony loam, 2 to 8 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus

Jaybee--Landform Plateaus, geomorphic position summit

Verdico--Landform Plateaus, geomorphic position toeslope

Inclusion 1 Landform Inset fans

Inclusion 2--Landform Plateaus, geomorphic position backslope aspect north

Inclusion 3--Landform Plateaus, geomorphic position backslope position on slope upper aspect north

Inclusion 4--Landform Alluvial fans, geomorphic position toeslope

Major Component Description**Jaybee Series**

Elevation 4 800 to 5 200 feet

Precipitation About 9 inches

Air temperature About 47 degrees

Frost-free season About 90 days

Surface rock fragments 2 percent stones and boulders 25 percent cobbles 20 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Verdico Series

Elevation 4 800 to 5 200 feet

Precipitation About 9 inches

Air temperature About 47 degrees

Frost-free season About 90 days

Surface rock fragments 10 percent stones and boulders 10 percent cobbles 20 percent gravel

Surface layer texture Very stony sandy loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Jaybee Thurber needlegrass, sagebrush

Verdico Thurber needlegrass, bluebunch wheatgrass, sagebrush

Inclusion 1 Basin big sagebrush, basin w drye

Inclusion 2 Big sagebrush, bluebunch wheatgrass

Inclusion 3 Idaho fescue bluebunch wheatgrass, low sagebrush

Inclusion 4 Thurber needlegrass, big sagebrush

Ecological Site

Jaybee 023XY047NV

Verdico 023XY047NV

Inclusion 1 023XY009NV

Inclusion 2 023XY020NV

Inclusion 3 023XY017NV

Inclusion 4 023XY006NV

1095--Corral-Mahala association**Composition****Major Components**

Corral very stony loam, 15 to 50 percent slopes--60 percent

Mahala very cobbly silt loam, 0 to 8 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Davey gravelly loamy sand 2 to 8 percent slopes—5 percent

Inclusion 2 Hart Camp stony loam, 15 to 30 percent slopes—5 percent

Inclusion 3 Vitnortrandic Haploxerolls. Ashy mesic loam 2 to 4 percent slopes—5 percent

Map Unit Setting

Landscape position Plateaus and hills

Corra—Landform Hills geomorphic position backslope aspect south

Mahaia—Landform Plateaus geomorphic position summit

Inclusion 1—Landform Inset fans

Inclusion 2—Landform Hills geomorphic position backslope aspect north

Inclusion 3—Landform Inset fans

Major Component Description**Corral Series**

Elevation 5 000 to 5 300 feet

Precipitation About 9 inches

Air temperature About 45 degrees

Frost-free season About 80 days

Surface rock fragments 15 percent stones and boulders, 15 percent cobbles 20 percent gravel

Surface layer texture Very stony loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Mahaia Series

Elevation 5 000 to 5 300 feet

Precipitation About 12 inches

Air temperature About 47 degrees

Frost-free season About 90 days

Surface rock fragments 30 percent cobbles, 20 percent gravel

Surface layer texture Very cobbly silt loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Corra Thurber needlegrass big sagebrush

Mahaia Thurber needlegrass bluebunch wheatgrass low sagebrush

Inclusion 1 Bas in big sagebrush, needleandthread

Inclusion 2 Idaho fescue, antelope bitterbrush bluebunch wheatgrass mountain big sagebrush

Inclusion 3 Bas in w idrye, big sagebrush

Ecological Site

Corra 023XY008NV

Mahaia 023XY031NV

Inclusion 1 023XY051NV

Inclusion 2 023XY015NV

Inclusion 3 023XY009NV

1105--Freznik very stony loam, 2 to 15 percent slopes**Composition****Major Components**

Freznik very stony loam, 2 to 15 percent slopes—85 percent

Contrasting Inclusions

Inclusion 1 Ferver very cobbly silt loam 2 to 15 percent slopes—8 percent

Inclusion 2 Tunnison very cobbly clay 0 to 8 percent slopes—7 percent

Map Unit Setting

Landscape position Plateaus

Freznik—Landform Plateaus

Inclusion 1—Landform Plateaus geomorphic position toeslope

Inclusion 2—Landform Plateaus geomorphic position backslope shape of slope concave

Major Component Description**Freznik Series**

Elevation 5 400 to 5 800 feet

Precipitation About 11 inches

Air temperature About 45 degrees

Frost-free season About 80 days

Surface rock fragments 15 percent stones and boulders 15 percent cobbles 20 percent gravel

Surface layer texture Very stony loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Freznik Bluegrass low sagebrush

Inclusion 1 Thurber needlegrass bluegrass low sagebrush

Inclusion 2 Rabbitbrush

Ecological Site

Freznik 023XY021NV

Inclusion 1 023XY059NV

Inclusion 2 023XY001NV

1110--Indian Creek-Buffaran association**Composition****Major Components**

Indian Creek very cobbly loam 4 to 15 percent slopes—50 percent

Buffaran very stony loam 4 to 15 percent slopes—40 percent

Contrasting Inclusions

Inclusion 1 Corral stony loam, 4 to 15 percent slopes—4 percent

Inclusion 2 Devada very stony loam 2 to 15 percent

slopes--4 percent
 inclusion 3 Schamp very stony loam 2 to 8 percent
 slopes--2 percent

Map Unit Setting

Landscape position Plateaus and adjacent bolsons
Indian Creek Landform Alluvial fans, shape of slope
 concave
Buffaran Landform Alluvial fans, shape of slope convex
inclusion 1 Landform Pediments
inclusion 2 Landform Plateaus, position on slope upper
inclusion 3 Landform Fan remnants, geomorphic
 position toeslope

Major Component Description

Indian Creek Series

Elevation 5 400 to 5 800 feet
Precipitation About 11 inches
Air temperature About 48 degrees
Frost-free season About 90 days
Surface rock fragments 20 percent cobbles, 15 percent
 gravel
Surface layer texture Very cobbly loam
Drainage class Well drained
Dominant parent material Alluvium derived from mixed
 rocks

Buffaran Series

Elevation 5 400 to 5 800 feet
Precipitation About 10 inches
Air temperature About 47 degrees
Frost-free season About 90 days
Surface rock fragments 10 percent stones and boulders,
 15 percent cobbles, 20 percent gravel
Surface layer texture Very stony loam
Drainage class Well drained
Dominant parent material Alluvium derived from mixed
 rocks

Dominant Present Vegetation

Indian Creek Thurber needlegrass, bluegrass, low
 sagebrush
Buffaran Thurber needlegrass, Wyoming big sagebrush,
 bluegrass
inclusion 1 Thurber needlegrass, Wyoming big
 sagebrush, bluegrass
inclusion 2 Thurber needlegrass, bluebunch wheatgrass,
 low sagebrush
inclusion 3 Thurber needlegrass, Wyoming big
 sagebrush, bluegrass

Ecological Site

Indian Creek 023XY059NV
Buffaran 023XY006NV
Inclusion 1 023XY006NV
Inclusion 2 023XY031NV
Inclusion 3 023XY006NV

1115--Lofftus-Mesman complex, 0 to 2 percent slopes

Composition

Major Components

Lofftus silt loam, 0 to 1 percent slopes--45 percent
 Mesman fine sandy loam, 0 to 2 percent slopes--40
 percent

Contrasting Inclusions

Inclusion 1 Paypoint gravelly fine sandy loam, 0 to 2
 percent slopes--6 percent
Inclusion 2 Langston very gravelly sandy loam, 2 to 4
 percent slopes--4 percent
Inclusion 3 Emagert loam, 0 to 2 percent slopes--3
 percent
Inclusion 4 Welvit loam, 0 to 2 percent slopes--2 percent

Map Unit Setting

Landscape position Bolsons
Lofftus Landform Lake terraces
Mesman Landform Lake terraces, shape of slope
 concave
Inclusion 1 Landform Lagoons
Inclusion 2 Landform Longshore bars (relict)
Inclusion 3 Landform Stream terraces
Inclusion 4 Landform Flood plains

Major Component Description

Lofftus Series

Elevation 4 560 to 4 580 feet
Precipitation About 9 inches
Air temperature About 47 degrees
Frost-free season About 100 days
Surface layer texture Silt loam
Drainage class Somewhat poorly drained
Dominant parent material Alluvium derived from lacustrine
 sediments

Mesman Series

Elevation 4 560 to 4 580 feet
Precipitation About 9 inches
Air temperature About 47 degrees
Frost-free season About 100 days
Surface layer texture Fine sandy loam
Drainage class Well drained
Dominant parent material Alluvium derived from lacustrine
 sediments

Dominant Present Vegetation

Lofftus Basin wildrye, black greasewood, inland saltgrass
Mesman Basin wildrye, big sagebrush, black greasewood
Inclusion 1 Thurber needlegrass, basin big sagebrush,
 basin wildrye
Inclusion 2 Thurber needlegrass, big sagebrush
Inclusion 3 Basin big sagebrush, basin wildrye, rubber
 rabbitbrush
Inclusion 4 Nevada bluegrass, creeping wildrye, sedge

Ecological Site

Lofftus 023XY010NV
 Mesman 024XY022NV
 Inclusion 1 023XY082NV
 Inclusion 2 023XY006NV
 Inclusion 3 023XY009NV
 Inclusion 4 023XY089NV

1120--McConnel very stony sandy loam, 2 to 8 percent slopes**Composition****Major Components**

McConnel very stony sandy loam, 2 to 8 percent slopes--
 85 percent

Contrasting Inclusions

Inclusion 1 Mazuma fine sandy loam 0 to 2 percent
 slopes--9 percent
 Inclusion 2 Xeric Torriorthents, sandy-skeletal, mixed
 mesic very gravelly sandy loam, 0 to 2 percent slopes--
 6 percent

Map Unit Setting

Landscape position Fan piedmonts
 McConnel--Landform Fan aprons
 Inclusion 1--Landform Lake plains
 Inclusion 2--Landform Insel fans

Major Component Description**McConnel Series**

Elevation 4 200 to 5 000 feet
 Precipitation About 9 inches
 Air temperature About 49 degrees
 Frost-free season About 100 days
 Surface rock fragments 10 percent stones and boulders
 20 percent gravel
 Surface layer texture Very stony sandy loam
 Drainage class Somewhat excessively drained
 Dominant parent material Alluvium derived from mixed
 rocks over lacustrine sediments

Dominant Present Vegetation

McConnel Thurber needlegrass Wyoming big sagebrush
 spiny hopsage
 Inclusion 1 Bud sagebrush shadscale
 Inclusion 2 Basin big sagebrush basin wildrye spiny
 hopsage

Ecological Site

McConnel 024XY020NV
 Inclusion 1 024XY065NV
 Inclusion 2 024XY041NV

1121--McConnel gravelly fine sandy loam, 2 to 8 percent slopes**Composition****Major Components**

McConnel gravelly fine sandy loam 0 to 2 percent slopes--
 85 percent

Contrasting Inclusions

Inclusion 1 Mazuma fine sandy loam 2 to 8 percent
 slopes--7 percent
 Inclusion 2 Schamp stony loam 4 to 15 percent slopes 5
 percent
 Inclusion 3 McConnel very gravelly sandy loam 0 to 2
 percent slopes 3 percent

Map Unit Setting

Landscape position Hills and intermontane basins
 McConnel--Landform Beach terraces position on slope
 upper
 Inclusion 1--Landform Lake terraces position on slope
 lower
 Inclusion 2--Landform Hills geomorphic position toeslope
 Inclusion 3--Landform Drainageways

Major Component Description**McConnel Series**

Elevation 4 600 to 4 800 feet
 Precipitation About 9 inches
 Air temperature About 49 degrees
 Frost-free season About 100 days
 Surface rock fragments 20 percent gravel
 Surface layer texture Gravelly fine sandy loam
 Drainage class Somewhat excessively drained
 Dominant parent material Alluvium derived from mixed
 rocks over lacustrine sediments

Dominant Present Vegetation

McConnel Wyoming big sagebrush shadscale spiny
 hopsage
 Inclusion 1 Bud sagebrush shadscale
 Inclusion 2 Thurber needlegrass Wyoming big sagebrush
 Inclusion 3 Basin big sagebrush basin wildrye

Ecological Site

McConnel 024XY020NV
 Inclusion 1 024XY065NV
 Inclusion 2 023XY006NV
 Inclusion 3 023XY005NV

1125--Halvert-Jaybee-Tunnison association**Composition****Major Components**

Halvert gravelly loam, 0 to 8 percent slopes 40

percent
 Jaybee very cobbly loam, 2 to 8 percent slopes--30 percent
 Tunnison cobbly clay 0 to 4 percent slopes--15 percent
Contrasting Inclusions
 Inclusion 1 Schamp clay loam 0 to 2 percent slopes--6 percent
 Inclusion 2 Bucklake very gravelly loam, 2 to 8 percent slopes--6 percent
 Inclusion 3 Fiddler very stony loam 4 to 15 percent slopes--2 percent
 Inclusion 4 Boulder Lake silty clay 0 to 2 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus
 Halvert--Landform Plateaus geomorphic position toeslope
 Jaybee--Landform Plateaus geomorphic position summit
 Tunnison--Landform Plateaus geomorphic position toeslope shape of slope concave
 Inclusion 1--Landform Inset fans
 Inclusion 2--Landform Plateaus geomorphic position backslope
 Inclusion 3--Landform Plateaus geomorphic position shoulder
 Inclusion 4--Landform Depressions

Major Component Description

Halvert Series

Elevation 5 250 to 5 500 feet
Precipitation About 12 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 5 percent cobbles, 15 percent gravel
Surface layer texture Gravelly loam
Drainage class Well drained
Dominant parent material Alluvium and colluvium derived from volcanic rocks

Jaybee Series

Elevation 5 250 to 5 500 feet
Precipitation About 9 inches
Air temperature About 47 degrees
Frost-free season About 90 days
Surface rock fragments 2 percent stones and boulders 25 percent cobbles 20 percent gravel
Surface layer texture Very cobbly loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Tunnison Series

Elevation 5 250 to 5 500 feet
Precipitation About 12 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 1 percent stones and boulders 15 percent cobbles 10 percent gravel
Surface layer texture Cobbly clay

Drainage class Well drained
Dominant parent material Residuum and colluvium derived from volcanic rocks

Dominant Present Vegetation

Halvert Bluebunch wheatgrass sagebrush
 Jaybee Thurber needlegrass sagebrush
 Tunnison Low sagebrush rubber rabbitbrush
 Inclusion 1 Big sagebrush Thurber needlegrass
 Inclusion 2 Big sagebrush bluebunch wheatgrass
 Inclusion 3 Bluebunch wheatgrass western juniper
 Inclusion 4 Nevada bluegrass silver sagebrush

Ecological Site

Halvert 023XY037NV
 Jaybee 023XY047NV
 Tunnison 023XY001NV
 Inclusion 1 023XY006NV
 Inclusion 2 023XY020NV
 Inclusion 3 023XY024NV
 Inclusion 4 023XY003NV

1130--Soughe-Rock outcrop complex, 4 to 30 percent slopes

Composition

Major Components

Soughe very cobbly loam, 4 to 30 percent slopes--75 percent
 Rock outcrop--15 percent
Contrasting Inclusions
 Inclusion 1 Bucklake very cobbly loam, 15 to 30 percent slopes--7 percent
 Inclusion 2 Old Camp very cobbly loam 15 to 30 percent slopes--3 percent

Map Unit Setting

Landscape position Plateaus
 Soughe--Landform Plateaus geomorphic position summit
 Rock outcrop--Landform Plateaus
 Inclusion 1--Landform Plateaus aspect north
 Inclusion 2--Landform Plateaus aspect south

Major Component Description

Soughe Series

Elevation 5,000 to 6,000 feet
Precipitation About 9 inches
Air temperature About 47 degrees
Frost-free season About 90 days
Surface rock fragments 20 percent cobbles 25 percent gravel
Surface layer texture Very cobbly loam
Drainage class Well drained
Dominant parent material Residuum and colluvium derived from volcanic rocks

Rock outcrop Miscellaneous Area

Elevation 5,000 to 6,000 feet
Drainage class Excessively drained

Dominant Present Vegetation

Soufhe: Thurber needlegrass, Wyoming big sagebrush,
spiny hopsage
Rock outcrop: None
Inclusion 1: Big sagebrush, bluebunch wheatgrass
Inclusion 2: Thurber needlegrass, Wyoming big sagebrush

Ecological Site

Soufhe: 023XY006NV
Rock outcrop: none
Inclusion 1: 023XY039NV
Inclusion 2: 023XY006NV

1131--Soufhe-Rock outcrop complex, 30 to 50 percent slopes**Composition****Major Components**

Soufhe: very cobbly loam, 30 to 50 percent slopes--60 percent
Rock outcrop--25 percent

Contrasting Inclusions

Inclusion 1: Uhaldi: very cobbly sandy loam, 30 to 50 percent slopes--7 percent
Inclusion 2: Chime: gravelly loam, 4 to 15 percent slopes--6 percent
Inclusion 3: Pachic Haploxerous: loamy-skeletal, mixed, mesic gravelly loam, 4 to 15 percent slopes--2 percent

Map Unit Setting

Landscape position: Hills and intermontane basins
Soufhe--Landform: Ash flows, geomorphic position: summit
Rock outcrop--Landform: Hills
Inclusion 1--Landform: Hills, geomorphic position: backslope, aspect: north
Inclusion 2--Landform: Pediments
Inclusion 3--Landform: Alluvial fans

Major Component Description**Soufhe Series**

Elevation: 4,800 to 5,200 feet
Precipitation: About 9 inches
Air temperature: About 47 degrees
Frost-free season: About 90 days
Surface rock fragments: 1 percent stones and boulders, 30 percent cobbles, 20 percent gravel
Surface layer texture: Very cobbly loam
Drainage class: Well drained
Dominant parent material: Residuum derived from volcanic rocks

Rock outcrop Miscellaneous Area

Elevation: 4,800 to 5,200 feet
Drainage class: Excessively drained

Dominant Present Vegetation

Soufhe: Thurber needlegrass, Wyoming big sagebrush
Rock outcrop: None
Inclusion 1: Bluebunch wheatgrass, mountain big sagebrush

Inclusion 2: Wyoming big sagebrush, spiny hopsage
Inclusion 3: Basin big sagebrush, basin wildrye

Ecological Site

Soufhe: 023XY006NV
Rock outcrop: none
Inclusion 1: 023XY020NV
Inclusion 2: 024XY020NV
Inclusion 3: 023XY009NV

1135--McWatt-Old Camp association**Composition****Major Components**

McWatt: extremely stony fine sandy loam, 8 to 30 percent slopes--50 percent
Old Camp: extremely stony loam, 8 to 30 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1: Rubble and fragmental material--7 percent
Inclusion 2: Langston: very gravelly sandy loam, 4 to 15 percent slopes--5 percent
Inclusion 3: Aridic Argixerous: loamy skeletal, mixed, mesic very stony loam, 15 to 50 percent slopes--2 percent
Inclusion 4: Fernpoint: very cobbly sandy loam, 15 to 30 percent slopes--1 percent

Map Unit Setting

Landscape position: Plateaus and adjacent basins
McWatt--Landform: Plateaus
Old Camp--Landform: Plateaus
Inclusion 1--Landform: Plateaus, geomorphic position: backslope
Inclusion 2--Landform: Longshore bars (relict)
Inclusion 3--Landform: Plateaus, geomorphic position: backslope, aspect: north
Inclusion 4--Landform: Beach terraces, position: on slope, lower, aspect: north

Major Component Description**McWatt Series**

Elevation: 5,500 to 6,000 feet
Precipitation: About 9 inches
Air temperature: About 46 degrees
Frost-free season: About 90 days
Surface rock fragments: 15 percent stones and boulders, 20 percent cobbles, 30 percent gravel
Surface layer texture: Extremely stony fine sandy loam
Drainage class: Somewhat excessively drained
Dominant parent material: Alluvium derived from volcanic rocks

Old Camp Series

Elevation: 5,500 to 6,000 feet
Precipitation: About 10 inches
Air temperature: About 45 degrees
Frost-free season: About 90 days
Surface rock fragments: 15 percent stones and boulders, 20 percent cobbles, 20 percent gravel
Surface layer texture: Extremely stony loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

McWatt Thurber needlegrass, Wyoming big sagebrush, bottlebrush squirreltail, spiny hopsage

Old Camp Thurber needlegrass, Wyoming big sagebrush
inclusion 1 None

Inclusion 2 Thurber needlegrass, big sagebrush, spiny hopsage

Inclusion 3 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 4 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Ecological Site

McWatt 023XY006NV

Old Camp 023XY008NV

Inclusion 1 none

Inclusion 2 023XY006NV

Inclusion 3 023XY020NV

Inclusion 4 023XY020NV

1140--Valmy very fine sandy loam, 0 to 2 percent slopes

Composition

Major Components

Valmy very fine sandy loam, 0 to 2 percent slopes--95 percent

Contrasting Inclusions

Inclusion 1 Raglan very fine sandy loam, 0 to 2 percent slopes--3 percent

Inclusion 2 Lpdk silty loam, 0 to 2 percent slopes, rarely flooded--2 percent

Map Unit Setting

Landscape position Bolsons

Valmy--Landform Inset fans

Inclusion 1--Landform Inset fans

Inclusion 2--Landform Alluvial flats

Major Component Description

Valmy Series

Elevation 4,900 to 4,950 feet

Precipitation About 8 inches

Air temperature About 51 degrees

Frost-free season About 100 days

Surface layer texture Very fine sandy loam

Drainage class Well drained

Dominant parent material Alluvium derived from volcanic rocks, loess and volcanic ash

Dominant Present Vegetation

Valmy Basin big sagebrush, basin wildrye, black greasewood

Inclusion 1 Black greasewood, shadscale

Inclusion 2 Basin wildrye, black greasewood

Ecological Site

Valmy 024XY006NV

Inclusion 1 024XY003NV

Inclusion 2 024XY008NV

1141--Valmy-Langston-Paypoint association

Composition

Major Components

Valmy fine sandy loam, 2 to 8 percent slopes--50 percent
Langston gravelly sandy loam, 2 to 8 percent slopes, 20 percent

Paypoint gravelly fine sandy loam, 0 to 2 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Dugway fine sandy loam, 0 to 2 percent slopes--7 percent

Inclusion 2 Saraph gravelly sandy loam, 2 to 4 percent slopes--5 percent

Inclusion 3 Mesman fine sandy loam, 0 to 2 percent slopes--3 percent

Map Unit Setting

Landscape position Intermontane basins

Valmy--Landform Beach terraces

Langston--Landform Longshore bars (relict)

Paypoint--Landform Lagoons

Inclusion 1--Landform Lake terraces

Inclusion 2--Landform Pediments, geomorphic position shoulder, shape of slope convex

Inclusion 3--Landform Lake terraces

Major Component Description

Valmy Series

Elevation 4,600 to 4,800 feet

Precipitation About 8 inches

Air temperature About 51 degrees

Frost-free season About 100 days

Surface layer texture Fine sandy loam

Drainage class Well drained

Dominant parent material Alluvium derived from volcanic rocks, loess and volcanic ash

Langston Series

Elevation 4,600 to 4,800 feet

Precipitation About 9 inches

Air temperature About 47 degrees

Frost-free season About 90 days

Surface rock fragments 25 percent gravel

Surface layer texture Gravelly sandy loam

Drainage class Well drained

Dominant parent material Alluvium derived from mixed rocks over lacustrine sediments

Paypoint Series

Elevation 4,600 to 4,800 feet

Precipitation About 9 inches

Air temperature About 47 degrees

Frost-free season About 90 days

Surface rock fragments 15 percent gravel

Surface layer texture Gravelly fine sandy loam

Drainage class Well drained

Dominant parent material Alluvium derived from mixed rocks, loess and volcanic ash

Dominant Present Vegetation

Vainy Big sagebrush, black greasewood, wheatgrass
Langston Thurber needlegrass, Wyoming big sagebrush,
bottlebrush squirreltail

Paypoint Basin wildrye, big sagebrush, bottlebrush
squirreltail, rubber rabbitbrush

Inclusion 1 Basin wildrye, big sagebrush, rabbitbrush
Inclusion 2 Thurber needlegrass, Wyoming big
sagebrush, wheatgrass

Inclusion 3 Wyoming big sagebrush, bottlebrush
squirreltail

Ecological Site

Vainy 024XY022NV

Langston 023XY006NV

Paypoint 023XY082NV

Inclusion 1 023XY005NV

Inclusion 2 023XY006NV

Inclusion 3 023XY006NV

1145--Wendane silt loam, 0 to 2 percent slopes, rarely flooded

Composition

Major Components

Wendane silt loam 0 to 2 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Raglan silt loam 0 to 2 percent slopes--5 percent

Inclusion 2 Iside fine sand 4 to 15 percent slopes--5 percent

Inclusion 3 Playas 0 to 1 percent slopes--5 percent

Map Unit Setting

Landscape position Basins

Wendane--Landform Alluvial flats

Inclusion 1--Landform Lake terraces

Inclusion 2--Landform Dunes

Inclusion 3--Landform Playas

Major Component Description

Wendane Series

Elevation 4,000 to 4,200 feet

Precipitation About 7 inches

Air temperature About 48 degrees

Frost-free season About 110 days

Surface layer texture Silt loam

Drainage class Somewhat poorly drained

Dominant parent material Alluvium derived from volcanic rocks, loess and volcanic ash

Dominant Present Vegetation

Wendane Basin wildrye, black greasewood

Inclusion 1 Black greasewood, bottlebrush squirreltail, shadscale

Inclusion 2 Indian ricegrass, black greasewood

Inclusion 3 None

Ecological Site

Wendane 024XY011NV

Inclusion 1 024XY003NV

Inclusion 2 024XY006NV

Inclusion 3 none

1150--Saraph-Hangrock-Tuffo association

Composition

Major Components

Saraph very gravelly sandy loam 4 to 30 percent slopes--35 percent

Hangrock very gravelly loam 2 to 15 percent slopes--30 percent

Tuffo very gravelly sandy loam 15 to 50 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Vitrikerandic Haplargids Ashy, mesic sandy loam, 0 to 4 percent slopes--7 percent

Inclusion 2 Fullstone very gravelly sandy loam 2 to 8 percent slopes--3 percent

Inclusion 3 Xeric Toronthents, clayey, montmorillonitic (calcareous), mesic, shallow gravelly clay loam 8 to 30 percent slopes--3 percent

Inclusion 4 Badiand 50 to 75 percent slopes--2 percent

Map Unit Setting

Landscape position Hills and intermontane basins

Saraph--Landform Ash flows, geomorphic position shoulder

Hangrock--Landform Fan remnants, geomorphic position summit

Tuffo--Landform Ash flows, geomorphic position backslope

Inclusion 1--Landform Inset fans

Inclusion 2--Landform Fan remnants, geomorphic position summit

Inclusion 3--Landform Pediments, geomorphic position backslope

Inclusion 4--Landform Plateaus, geomorphic position backslope

Major Component Description

Saraph Series

Elevation 5,700 to 6,100 feet

Precipitation About 10 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 50 percent gravel

Surface layer texture Very gravelly sandy loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Hangrock Series

Elevation 5,700 to 6,100 feet

Precipitation About 10 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface rock fragments 5 percent cobbles, 40 percent gravel

Surface layer texture Very gravelly loam

Drainage class: Well drained

Dominant parent material: Alluvium derived from pyroclastic and extrusive volcanic rocks

Tuffo Series

Elevation: 5,700 to 6,100 feet

Precipitation: About 10 inches

Air temperature: About 45 degrees

Frost-free season: About 100 days

Surface rock fragments: 35 percent gravel

Surface layer texture: Very gravelly sandy loam

Drainage class: Somewhat excessively drained

Dominant parent material: Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Saraph: Thurber needlegrass, Wyoming big sagebrush
Hangrock: Thurber needlegrass, Wyoming big sagebrush, bottlebrush squirreltail

Tuffo: Wyoming big sagebrush, needlegrass, sagebrush

Inclusion 1: Douglas rabbitbrush, basin big sagebrush, basin wildrye, rubber rabbitbrush

Inclusion 2: Thurber needlegrass, bluegrass, sagebrush

Inclusion 3: Thurber needlegrass, sagebrush

Inclusion 4: None

Ecological Site

Saraph: 023XY006NV

Hangrock: 023XY006NV

Tuffo: 023XY088NV

Inclusion 1: 023XY082NV

Inclusion 2: 023XY093NV

Inclusion 3: 023XY047NV

Inclusion 4: none

1151--Saraph-Tuffo-Yellowhills association

Composition

Major Components

Saraph: loamy sand, 2 to 8 percent slopes--50 percent

Tuffo: fine sandy loam, 15 to 30 percent slopes--25 percent

Yellowhills: sandy loam, 0 to 2 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1: Badand: 50 to 75 percent slopes--5 percent

Inclusion 2: Devada: very stony loam, 4 to 15 percent slopes--5 percent

Map Unit Setting

Landscape position: Plateaus

Saraph--Landform: Ash flows, geomorphic position: summit

Tuffo--Landform: Ash flows, geomorphic position: backslope

Yellowhills--Landform: Inset fans

Inclusion 1--Landform: Plateaus, geomorphic position: backslope

Inclusion 2--Landform: Plateaus

Major Component Description

Saraph Series

Elevation: 5,700 to 6,100 feet

Precipitation: About 10 inches

Air temperature: About 45 degrees

Frost-free season: About 90 days

Surface rock fragments: 10 percent gravel

Surface layer texture: Loamy sand

Drainage class: Well drained

Dominant parent material: Residuum derived from tuffaceous rocks

Tuffo Series

Elevation: 5,700 to 6,100 feet

Precipitation: About 10 inches

Air temperature: About 45 degrees

Frost-free season: About 100 days

Surface rock fragments: 10 percent gravel

Surface layer texture: Fine sandy loam

Drainage class: Somewhat excessively drained

Dominant parent material: Residuum derived from tuffaceous rocks

Yellowhills Series

Elevation: 5,700 to 6,100 feet

Precipitation: About 11 inches

Air temperature: About 45 degrees

Frost-free season: About 90 days

Surface layer texture: Sandy loam

Drainage class: Well drained

Dominant parent material: Alluvium derived from pyroclastic and extrusive volcanic rocks

Dominant Present Vegetation

Saraph: Thurber needlegrass, Wyoming big sagebrush

Tuffo: Wyoming big sagebrush, needlegrass

Yellowhills: Idaho fescue, Thurber needlegrass, basin big sagebrush

Inclusion 1: None

Inclusion 2: Thurber needlegrass, bluebunch wheatgrass, low sagebrush

Ecological Site

Saraph: 023XY006NV

Tuffo: 023XY020NV

Yellowhills: 023XY071NV

Inclusion 1: none

Inclusion 2: 023XY031NV

1155--Madeline-Ninemile complex, 4 to 15 percent slopes

Composition

Major Components

Madeline: stony loam, 4 to 15 percent slopes--45 percent

Ninemile: very cobbly loam, 4 to 15 percent slopes--40 percent

Contrasting Inclusions

Inclusion 1: Devada: very cobbly loam, 4 to 30 percent slopes--8 percent

Inclusion 2: Reywal: stony loam, 4 to 15 percent slopes--4 percent

Inclusion 3: Uhaldo: stony loam, 8 to 15 percent slopes--2 percent

inclusion 4 Westbulte stony loam. 8 to 30 percent slopes
1 percent

Map Unit Setting

Landscape position. Plateaus
Madeline--Landform. Plateaus, geomorphic position
shoulder, shape of slope concave
Ninemile--Landform. Plateaus, geomorphic position
summit, shape of slope convex
inclusion 1--Landform. Plateaus, geomorphic position
summit, aspect south
inclusion 2--Landform. Plateaus, geomorphic position
backslope, aspect south
inclusion 3--Landform. Plateaus, geomorphic position:
backslope, shape of slope concave
inclusion 4--Landform. Plateaus, geomorphic position
backslope, aspect north

Major Component Description

Madeline Series

Elevation. 5 900 to 6 200 feet
Precipitation. About 13 inches
Air temperature. About 44 degrees
Frost-free season. About 80 days
Surface rock fragments. 1 percent stones and boulders, 20
percent cobbles, 10 percent gravel
Surface layer texture. Stony loam
Drainage class. Well drained
Dominant parent material. Residuum derived from volcanic
rocks

Ninemile Series

Elevation. 5 900 to 6 200 feet
Precipitation. About 14 inches
Air temperature. About 44 degrees
Frost-free season. About 75 days
Surface rock fragments. 20 percent cobbles, 30 percent
gravel
Surface layer texture. Very cobbly loam
Drainage class. Well drained
Dominant parent material. Residuum derived from volcanic
rocks

Dominant Present Vegetation

Madeline. Antelope bitterbrush, bluebunch wheatgrass,
bluegrass, mountain big sagebrush
Ninemile. Idaho fescue, bluebunch wheatgrass, low
sagebrush
Inclusion 1. Thurber needlegrass, bluebunch wheatgrass,
low sagebrush
Inclusion 2. Thurber needlegrass, big sagebrush,
bluebunch wheatgrass
Inclusion 3. Thurber needlegrass, big sagebrush,
bluebunch wheatgrass
Inclusion 4. Idaho fescue, bluebunch wheatgrass,
mountain big sagebrush

Ecological Site

Madeline. 023XY015NV
Ninemile. 023XY017NV
Inclusion 1. 023XY031NV
Inclusion 2. 023XY020NV
Inclusion 3. 023XY020NV

Inclusion 4. 023XY007NV

1160--Wylo-Bucklake-Rock outcrop association

Composition

Major Components

Wylo. very stony loam, 8 to 30 percent slopes--65 percent
Bucklake. extremely stony loam, 15 to 50 percent slopes--
20 percent
Rock outcrop. 15 percent

Contrasting Inclusions

Inclusion 1. Ceejay stony loam, 8 to 30 percent slopes--4
percent
Inclusion 2. Old Camp very stony loam, 30 to 50 percent
slopes--4 percent
Inclusion 3. Halvert gravelly loam, 2 to 8 percent slopes--2
percent

Map Unit Setting

Landscape position. Plateaus
Wylo--Landform. Plateaus, geomorphic position, summit
Bucklake--Landform. Plateaus, geomorphic position,
backslope
Rock outcrop--Landform. Plateaus
Inclusion 1--Landform. Plateaus, geomorphic position,
summit, position on slope, lower
Inclusion 2--Landform. Plateaus, geomorphic position,
backslope, position on slope, lower
Inclusion 3--Landform. Plateaus, geomorphic position,
summit, shape of slope, concave

Major Component Description

Wylo Series

Elevation. 5 800 to 5 900 feet
Precipitation. About 11 inches
Air temperature. About 45 degrees
Frost-free season. About 80 days
Surface rock fragments. 10 percent stones and boulders, 5
percent cobbles, 25 percent gravel
Surface layer texture. Very stony loam
Drainage class. Well drained
Dominant parent material. Residuum derived from volcanic
rocks

Bucklake Series

Elevation. 5 800 to 5 900 feet
Precipitation. About 11 inches
Air temperature. About 45 degrees
Frost-free season. About 80 days
Surface rock fragments. 20 percent stones and boulders,
10 percent cobbles, 10 percent gravel
Surface layer texture. Extremely stony loam
Drainage class. Well drained
Dominant parent material. Residuum derived from volcanic
rocks

Rock outcrop Miscellaneous Area

Elevation. 5 800 to 5 900 feet
Drainage class. Excessively drained

Dominant Present Vegetation

Wylo Bluebunch wheatgrass, sagebrush
 Bucklake Thurber needlegrass, big sagebrush, bluebunch wheatgrass
 Rock outcrop None
 inclusion 1 Thurber needlegrass, bluegrass, sagebrush
 Inclusion 2 Thurber needlegrass, Wyoming big sagebrush
 Inclusion 3 Thurber needlegrass, bluebunch wheatgrass, sagebrush

Ecological Site

Wylo 023XY037NV
 Bucklake 023XY039NV
 Rock outcrop none
 inclusion 1 023XY093NV
 inclusion 2 023XY006NV
 inclusion 3 023XY037NV

1162--Devada-Nitpac association**Composition**

Major Components
 Devada extremely cobbly loam, 4 to 15 percent slopes--70 percent
 Nitpac very cobbly loam, 2 to 8 percent slopes--20 percent
Contrasting Inclusions
 Inclusion 1 Grassycan extremely stony fine sandy loam, 2 to 15 percent slopes--4 percent
 inclusion 2 Farver very gravelly fine sandy loam, 2 to 15 percent slopes--3 percent
 inclusion 3 Uhaidi stony loam, 2 to 15 percent slopes--2 percent
 Inclusion 4 Nemile very stony loam, 2 to 15 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus
 Devada--Landform Plateaus, geomorphic position summit
 Nitpac--Landform Plateaus, geomorphic position toeslope
 inclusion 1--Landform Plateaus, geomorphic position summit
 inclusion 2--Landform Plateaus, geomorphic position toeslope, shape of slope concave
 Inclusion 3--Landform Plateaus, geomorphic position shoulder
 inclusion 4--Landform Plateaus, geomorphic position summit, aspect north

Major Component Description**Devada Series**

Elevation 6 100 to 6 200 feet
 Precipitation About 12 inches
 Air temperature About 46 degrees
 Frost-free season About 90 days
 Surface rock fragments 35 percent cobbles, 35 percent gravel
 Surface layer texture Extremely cobbly loam
 Drainage class Well drained
 Dominant parent material Residuum derived from volcanic rocks

Nitpac Series

Elevation 6 100 to 6 200 feet
 Precipitation About 11 inches
 Air temperature About 46 degrees
 Frost-free season About 90 days
 Surface rock fragments 1 percent stones and boulders, 15 percent cobbles, 20 percent gravel
 Surface layer texture Very cobbly loam
 Drainage class Well drained
 Dominant parent material Alluvium derived from mixed rocks

Dominant Present Vegetation

Devada Bluebunch wheatgrass, low sagebrush
 Nitpac Bluebunch wheatgrass, bluegrass, low sagebrush
 Inclusion 1 Bluegrass, low sagebrush
 Inclusion 2 Thurber needlegrass, bluegrass, low sagebrush
 Inclusion 3 Thurber needlegrass, big sagebrush, bluebunch wheatgrass
 Inclusion 4 Idaho fescue, bluebunch wheatgrass, low sagebrush

Ecological Site

Devada 023XY031NV
 Nitpac 023XY031NV
 Inclusion 1 023XY021NV
 Inclusion 2 023XY059NV
 Inclusion 3 023XY020NV
 Inclusion 4 023XY017NV

1163--Devada-Deseed complex, 2 to 15 percent slopes**Composition**

Major Components
 Devada very cobbly loam, 2 to 15 percent slopes--50 percent
 Deseed silt loam, 2 to 15 percent slopes--35 percent
Contrasting Inclusions
 Inclusion 1 Reywat very stony loam, 4 to 15 percent slopes--7 percent
 Inclusion 2 Uhaidi stony loam, 4 to 15 percent slopes--4 percent
 Inclusion 3 Zymans cobbly loam, 4 to 15 percent slopes--3 percent
 Inclusion 4 Bidrim extremely stony loam, 2 to 15 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus
 Devada--Landform Plateaus, geomorphic position summit
 Deseed--Landform Plateaus, geomorphic position shoulder, aspect north
 Inclusion 1--Landform Plateaus, geomorphic position shoulder
 Inclusion 2--Landform Plateaus, geomorphic position backslope, shape of slope convex
 Inclusion 3--Landform Plateaus, geomorphic position backslope, position on slope upper

Inclusion 4--Landform: Plateaus, geomorphic position: shoulder

Major Component Description

Devada Series

Elevation: 5,500 to 6,200 feet

Precipitation: About 12 inches

Air temperature: About 45 degrees

Frost-free season: About 90 days

Surface rock fragments: 25 percent cobbles, 25 percent gravel

Surface layer texture: Very cobbly loam

Drainage class: Well drained

Dominant parent material: Residuum derived from volcanic rocks

Deseed Series

Elevation: 5,500 to 6,200 feet

Precipitation: About 11 inches

Air temperature: About 45 degrees

Frost-free season: About 90 days

Surface layer texture: Silt loam

Drainage class: Well drained

Dominant parent material: Residuum derived from volcanic rocks

Dominant Present Vegetation

Devada: Bluebunch wheatgrass, low sagebrush

Deseed: Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 1: Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 2: Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 3: Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 4: Bluebunch wheatgrass, bluegrass, low sagebrush, western juniper

Ecological Site

Devada: 023XY031NV

Deseed: 023XY020NV

Inclusion 1: 023XY020NV

Inclusion 2: 023XY020NV

Inclusion 3: 023XY020NV

Inclusion 4: 023XY091NV

1164--Devada-Ashcamp association

Composition

Major Components

Devada: very gravelly loam, 2 to 15 percent slopes--60 percent

Ashcamp: sandy loam, 2 to 15 percent slopes--25 percent

Contrasting Inclusions

Inclusion 1: Wylo: very gravelly loam, 2 to 15 percent slopes--5 percent

Inclusion 2: Saraph: gravelly sandy loam, 4 to 30 percent slopes--5 percent

Inclusion 3: Ferver: very gravelly fine sandy loam, 2 to 8 percent slopes--3 percent

Inclusion 4: Rock outcrop--2 percent

Map Unit Setting

Landscape position: Plateaus

Devada--Landform: Plateaus, geomorphic position: summit

Ashcamp--Landform: Plateaus, geomorphic position: shoulder

Inclusion 1--Landform: Plateaus, geomorphic position: summit, position on slope: lower

Inclusion 2--Landform: Plateaus, geomorphic position: shoulder, position on slope: lower

Inclusion 3--Landform: Plateaus, geomorphic position: summit, shape of slope: concave

Inclusion 4--Landform: Plateaus

Major Component Description

Devada Series

Elevation: 5,800 to 6,400 feet

Precipitation: About 12 inches

Air temperature: About 45 degrees

Frost-free season: About 90 days

Surface rock fragments: 1 percent stones and boulders, 2 percent cobbles, 40 percent gravel

Surface layer texture: Very gravelly loam

Drainage class: Well drained

Dominant parent material: Residuum derived from volcanic rocks

Ashcamp Series

Elevation: 5,800 to 6,400 feet

Precipitation: About 13 inches

Air temperature: About 46 degrees

Frost-free season: About 90 days

Surface layer texture: Sandy loam

Drainage class: Well drained

Dominant parent material: Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Dominant Present Vegetation

Devada: Thurber needlegrass, bluebunch wheatgrass, low sagebrush

Ashcamp: Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 1: Thurber needlegrass, bluebunch wheatgrass, sagebrush

Inclusion 2: Thurber needlegrass, Wyoming big sagebrush, bluegrass

Inclusion 3: Thurber needlegrass, bluegrass, low sagebrush

Inclusion 4: None

Ecological Site

Devada: 023XY031NV

Ashcamp: 023XY020NV

Inclusion 1: 023XY037NV

Inclusion 2: 023XY006NV

Inclusion 3: 023XY059NV

Inclusion 4: none

1165--Devada-Nitpac-Bidrim association**Composition****Major Components**

Devada very cobbly loam, 2 to 30 percent slopes--50 percent

Nitpac very cobbly loam, 4 to 15 percent slopes--20 percent

Bidrim extremely stony loam, 2 to 15 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Tunnison very cobbly clay, 0 to 8 percent slopes--8 percent

Inclusion 2 Buckake stony loam, 4 to 15 percent slopes--4 percent

Inclusion 3 Lathic Argixerolls clayey montmorillonitic mesic very stony loam, 4 to 15 percent slopes--2 percent

Inclusion 4 Ferver very cobbly loam, 2 to 8 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus

Devada--Landform Plateaus, geomorphic position, summit

Nitpac--Landform Plateaus, geomorphic position, toeslope

Bidrim--Landform Plateaus, geomorphic position, shoulder

Inclusion 1--Landform Depressions, shape of slope concave

Inclusion 2--Landform Plateaus, geomorphic position, backslope position on slope upper aspect north

Inclusion 3--Landform Plateaus, geomorphic position, summit

Inclusion 4--Landform Plateaus, geomorphic position, summit

Major Component Description**Devada Series**

Elevation 5,300 to 6,000 feet

Precipitation About 12 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 30 percent cobbles, 20 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Nitpac Series

Elevation 5,300 to 6,000 feet

Precipitation About 11 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface rock fragments 1 percent stones and boulders, 15 percent cobbles, 20 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Alluvium derived from mixed rocks

Bidrim Series

Elevation 5,300 to 6,000 feet

Precipitation About 12 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 15 percent stones and boulders, 20 percent cobbles, 20 percent gravel

Surface layer texture Extremely stony loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Devada Bluebunch wheatgrass, low sagebrush

Nitpac Bluebunch wheatgrass, low sagebrush

Bidrim Cusick bluegrass, Nevada bluegrass, bluebunch

wheatgrass, low sagebrush, western juniper

Inclusion 1 Bluegrass, low sagebrush, rubber rabbitbrush

Inclusion 2 Antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush

Inclusion 3 Sandberg bluegrass, low sagebrush

Inclusion 4 Thurber needlegrass, bluegrass, low sagebrush

Ecological Site

Devada 023XY031NV

Nitpac 023XY031NV

Bidrim 023XY091NV

Inclusion 1 023XY001NV

Inclusion 2 023XY039NV

Inclusion 3 023XY021NV

Inclusion 4 023XY059NV

1166--Devada-Bieber association**Composition****Major Components**

Devada very cobbly loam, 2 to 15 percent slopes--50 percent

Bieber very gravelly loam, 2 to 15 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Buffaran very gravelly loam, 2 to 15 percent slopes--8 percent

Inclusion 2 Reywat very stony loam, 15 to 30 percent slopes--7 percent

Map Unit Setting

Landscape position Plateaus and adjacent boissons

Devada--Landform Plateaus, geomorphic position, backslope

Bieber--Landform Plateaus, geomorphic position, toeslope

Inclusion 1--Landform Fan remnants

Inclusion 2--Landform Plateaus, geomorphic position, backslope, aspect south

Major Component Description**Devada Series**

Elevation 5,300 to 5,450 feet

Precipitation About 12 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 30 percent cobbles, 20 percent gravel

Surface layer texture Very cobbly loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Bieber Series

Elevation 5,300 to 5,450 feet
Precipitation About 10 inches
Air temperature About 47 degrees
Frost-free season About 60 days
Surface rock fragments 50 percent gravel
Surface layer texture Very gravelly loam
Drainage class Well drained
Dominant parent material Alluvium derived from volcanic rocks

Dominant Present Vegetation

Devada Bluebunch wheatgrass, low sagebrush
 Bieber Thurber needlegrass, antelope bitterbrush
 bluebunch wheatgrass, low sagebrush
 inclusion 1 Thurber needlegrass, big sagebrush
 inclusion 2 Big sagebrush, bluebunch wheatgrass

Ecological Site

Devada 023XY031NV
 Bieber 023XY031NV
 inclusion 1 023XY006NV
 inclusion 2 023XY039NV

1167--Devada-Reywat association

Composition

Major Components

Devada very stony loam, 4 to 30 percent slopes--50 percent
 Reywat very stony loam, 4 to 15 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Reywat very stony loam, 15 to 50 percent slopes--9 percent
 inclusion 2 Bucklake very stony loam, 30 to 50 percent slopes--3 percent
 inclusion 3 Hart Camp stony loam, 15 to 30 percent slopes--2 percent
 inclusion 4 Indian Creek very cobbly loam, 2 to 8 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus and adjacent bolsons
 Devada--Landform: Plateaus, geomorphic position: shoulder
 Reywat--Landform: Plateaus, geomorphic position: summit
 inclusion 1--Landform: Plateaus, geomorphic position: backslope
 inclusion 2--Landform: Plateaus, geomorphic position: backslope, position on slope: upper aspect, south
 inclusion 3--Landform: Plateaus, geomorphic position: shoulder aspect, north
 inclusion 4--Landform: Alluvia, fans

Major Component Description

Devada Series

Elevation 5,600 to 5,800 feet
Precipitation About 12 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 5 percent stones and boulders, 15 percent cobbles, 20 percent gravel
Surface layer texture Very stony loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Reywat Series

Elevation 5,600 to 5,800 feet
Precipitation About 12 inches
Air temperature About 45 degrees
Frost-free season About 80 days
Surface rock fragments 10 percent stones and boulders, 10 percent cobbles, 20 percent gravel
Surface layer texture Very stony loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Devada Thurber needlegrass, bluebunch wheatgrass, low sagebrush
 Reywat Thurber needlegrass, big sagebrush, bluebunch wheatgrass
 inclusion 1 Big sagebrush, bluebunch wheatgrass
 inclusion 2 Big sagebrush, bluebunch wheatgrass
 inclusion 3 Antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 inclusion 4 Thurber needlegrass, low sagebrush

Ecological Site

Devada 023XY031NV
 Reywat 023XY020NV
 inclusion 1 023XY039NV
 inclusion 2 023XY039NV
 inclusion 3 023XY015NV
 inclusion 4 023XY059NV

1168--Devada extremely cobbly loam, 4 to 15 percent slopes

Composition

Major Components

Devada extremely cobbly loam, 4 to 15 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Rock outcrop--5 percent
 Inclusion 2 Bucklake extremely stony loam, 15 to 30 percent slopes--4 percent
 Inclusion 3 Grassycan very stony sandy loam, 2 to 8 percent slopes--3 percent
 Inclusion 4 Nitpac very cobbly loam, 4 to 15 percent slopes--3 percent

Map Unit Setting*Landscape position* Plateaus

Devada Landform Plateaus, geomorphic position summit

Inclusion 1--Landform Plateaus

Inclusion 2--Landform Plateaus, geomorphic position
backslopeInclusion 3--Landform Plateaus, geomorphic position
summitInclusion 4--Landform Plateaus, geomorphic position
backslope**Major Component Description****Devada Series***Elevation* 5,500 to 6,500 feet*Precipitation* About 12 inches*Air temperature* About 45 degrees*Frost-free season* About 90 days*Surface rock fragments* 35 percent cobbles, 35 percent
gravel*Surface layer texture* Extremely cobbly loam*Drainage class* Well drained*Dominant parent material* Residuum derived from volcanic
rocks**Dominant Present Vegetation**

Devada Bluebunch wheatgrass, low sagebrush

Inclusion 1 None

Inclusion 2 Big sagebrush, bluebunch wheatgrass

Inclusion 3 Thurber needlegrass, bluegrass, low
sagebrushInclusion 4 Bluebunch wheatgrass, bluegrass, low
sagebrush**Ecological Site**

Devada 023XY031NV

Inclusion 1 none

Inclusion 2 023XY039NV

Inclusion 3 023XY059NV

Inclusion 4 023XY031NV

1170--Devada-Bucklake association**Composition****Major Components**Devada very stony loam, 4 to 50 percent slopes--55
percentBucklake very cobbly loam, 30 to 50 percent slopes--30
percent**Contrasting Inclusions**Inclusion 1 Dose very stony loam, 30 to 50 percent
slopes--7 percentInclusion 2 Menba very stony loam, 30 to 50 percent
slopes--6 percentInclusion 3 Bdr in extremely stony loam, 2 to 15 percent
slopes--1 percentInclusion 4 Fiddler extremely stony loam, 30 to 50 percent
slopes--1 percent**Map Unit Setting***Landscape position* PlateausDevada Landform Plateaus, geomorphic position
summit, shape of slope convexBucklake Landform Plateaus, geomorphic position
backslope, shape of slope concaveInclusion 1--Landform Plateaus, geomorphic position
backslope, aspect eastInclusion 2--Landform Plateaus, geomorphic position
backslope, position on slope upperInclusion 3--Landform Plateaus, geomorphic position
shoulderInclusion 4--Landform Plateaus, geomorphic position
backslope, position on slope upper, aspect south**Major Component Description****Devada Series***Elevation* 5,000 to 6,000 feet*Precipitation* About 12 inches*Air temperature* About 45 degrees*Frost-free season* About 90 days*Surface rock fragments* 15 percent stones and boulders, 5
percent cobbles, 5 percent gravel*Surface layer texture* Very stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from volcanic
rocks**Bucklake Series***Elevation* 5,000 to 6,000 feet*Precipitation* About 11 inches*Air temperature* About 45 degrees*Frost-free season* About 80 days*Surface rock fragments* 35 percent cobbles, 15 percent
gravel*Surface layer texture* Very cobbly loam*Drainage class* Well drained*Dominant parent material* Residuum and colluvium
derived from volcanic rocks**Dominant Present Vegetation**Devada Thurber needlegrass, bluebunch wheatgrass, low
sagebrushBucklake Thurber needlegrass, big sagebrush, bluebunch
wheatgrassInclusion 1 Thurber needlegrass, bluebunch wheatgrass,
mountain big sagebrushInclusion 2 Idaho fescue, bluebunch wheatgrass,
mountain big sagebrushInclusion 3 Thurber needlegrass, low sagebrush, western
juniperInclusion 4 Bluebunch wheatgrass, mountain big
sagebrush, western juniper**Ecological Site**

Devada 023XY031NV

Bucklake 023XY039NV

Inclusion 1 023XY016NV

Inclusion 2 023XY007NV

Inclusion 3 023XY091NV

Inclusion 4 023XY024NV

1171--Devada-Indian Creek association**Composition****Major Components**

Devada very stony loam 4 to 30 percent slopes--50 percent

Indian Creek very cobbly loam 4 to 15 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Zymans very stony loam 8 to 15 percent slopes--7 percent

Inclusion 2 Mahala very cobbly loam 2 to 8 percent slopes--5 percent

Inclusion 3 Hart Camp stony loam 8 to 30 percent slopes--3 percent

Map Unit Setting

Landscape position Plateaus and adjacent bolsons

Devada--Landform Plateaus, geomorphic position summit

Indian Creek--Landform Inset fans

Inclusion 1--Landform Plateaus, geomorphic position shoulder

Inclusion 2--Landform Ash flows, geomorphic position summit

Inclusion 3--Landform Plateaus, geomorphic position backslope, aspect east

Major Component Description**Devada Series**

Elevation 5 500 to 6 000 feet

Precipitation About 12 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 15 percent stones and boulders, 5 percent cobbles, 5 percent gravel

Surface layer texture Very stony loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Indian Creek Series

Elevation 5 500 to 6 000 feet

Precipitation About 11 inches

Air temperature About 48 degrees

Frost-free season About 90 days

Surface rock fragments 20 percent cobbles, 15 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Alluvium derived from mixed rocks

Dominant Present Vegetation

Devada Thurber needlegrass, bluebunch wheatgrass, low sagebrush

Indian Creek Thurber needlegrass, bluegrass, low sagebrush

Inclusion 1 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 2 Thurber needlegrass, bluebunch wheatgrass, low sagebrush

Inclusion 3 Antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush

Ecological Site

Devada 023XY031NV

Indian Creek 023XY059NV

Inclusion 1 023XY020NV

Inclusion 2 023XY031NV

Inclusion 3 023XY015NV

1172--Devada-Madeline-Ninemile association**Composition****Major Components**

Devada very gravelly loam 8 to 30 percent slopes--45 percent

Madeline very cobbly loam 8 to 30 percent slopes--20 percent

Ninemile very cobbly loam 8 to 30 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Nitpac very cobbly loam 4 to 15 percent slopes--6 percent

Inclusion 2 Tinpan very cobbly loam 0 to 8 percent slopes--5 percent

Inclusion 3 Welch sandy loam 2 to 8 percent slopes, rarely flooded--3 percent

Inclusion 4 Newlands very gravelly loam 15 to 30 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus

Devada--Landform Plateaus, geomorphic position backslope, aspect south

Madeline--Landform Plateaus, geomorphic position backslope, shape of slope convex, aspect north

Ninemile--Landform Plateaus, geomorphic position backslope, shape of slope concave, aspect north

Inclusion 1--Landform Plateaus, geomorphic position toeslope, aspect south

Inclusion 2--Landform Depressions, shape of slope concave, aspect north

Inclusion 3--Landform Drainageways, shape of slope convex

Inclusion 4--Landform Plateaus, geomorphic position backslope, aspect north

Major Component Description**Devada Series**

Elevation 5 800 to 6 200 feet

Precipitation About 12 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 1 percent stones and boulders, 2 percent cobbles, 40 percent gravel

Surface layer texture Very gravelly loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Madeline Series

Elevation 5 800 to 6 200 feet

Precipitation About 13 inches

Air temperature About 44 degrees

Frost-free season About 80 days

Surface layer texture Very cobbly loam
Surface rock fragments 20 percent cobbles, 30 percent gravel
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Ninemire Series

Elevation 5 800 to 6 200 feet
Precipitation About 14 inches
Air temperature About 44 degrees
Frost-free season About 75 days
Surface rock fragments 20 percent cobbles, 30 percent gravel
Surface layer texture Very cobbly loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Devada Thurber needlegrass bluebunch wheatgrass, low sagebrush
 Madeline Antelope bitterbrush bluebunch wheatgrass mountain big sagebrush
 Ninemire Idaho fescue bluebunch wheatgrass, low sagebrush
 Inclusion 1 Thurber needlegrass bluebunch wheatgrass, low sagebrush
 Inclusion 2 Idaho fescue bluebunch wheatgrass, low sagebrush
 Inclusion 3 Nevada bluegrass, big sagebrush, sedge
 Inclusion 4 Idaho fescue mountain big sagebrush needlegrass snowberry

Ecological Site

Devada 023XY031NV
 Madeline 023XY015NV
 Ninemire 023XY017NV
 Inclusion 1 023XY031NV
 Inclusion 2 023XY017NV
 Inclusion 3 023XY013NV
 Inclusion 4 023XY065NV

1173--Devada-Nitpac-Uhaldri association

Composition

Major Components

Devada very cobbly loam, 8 to 30 percent slopes--35 percent
 Nitpac very cobbly loam, 4 to 15 percent slopes--30 percent

Uhaldri stony loam, 8 to 30 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Ninemire very cobbly loam, 8 to 30 percent slopes--5 percent
 Inclusion 2 Westbulte stony loam, 15 to 30 percent slopes--4 percent
 Inclusion 3 Hart Camp stony loam, 4 to 15 percent slopes--3 percent
 Inclusion 4 Reywat very stony loam, 15 to 30 percent slopes--3 percent

Map Unit Setting

Landscape position Plateaus
 Devada--Landform Plateaus geomorphic position summit
 Nitpac--Landform Plateaus geomorphic position toeslope
 Uhaldri--Landform Plateaus geomorphic position backslope
 Inclusion 1--Landform Plateaus geomorphic position summit aspect north
 Inclusion 2--Landform Plateaus geomorphic position backslope aspect north
 Inclusion 3--Landform Pediments, geomorphic position backslope aspect north
 Inclusion 4--Landform Plateaus, geomorphic position backslope

Major Component Description

Devada Series

Elevation 5 600 to 6 000 feet
Precipitation About 12 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 30 percent cobbles, 20 percent gravel
Surface layer texture Very cobbly loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Nitpac Series

Elevation 5 600 to 6 000 feet
Precipitation About 11 inches
Air temperature About 46 degrees
Frost-free season About 90 days
Surface rock fragments 1 percent stones and boulders, 15 percent cobbles, 20 percent gravel
Surface layer texture Very cobbly loam
Drainage class Well drained
Dominant parent material Alluvium derived from mixed rocks

Uhaldri Series

Elevation 5 800 to 6 000 feet
Precipitation About 11 inches
Air temperature About 46 degrees
Frost-free season About 90 days
Surface rock fragments 1 percent stones and boulders, 3 percent cobbles, 30 percent gravel
Surface layer texture Stony loam
Drainage class Well drained
Dominant parent material Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Devada Thurber needlegrass, bluebunch wheatgrass, low sagebrush
 Nitpac Thurber needlegrass, bluebunch wheatgrass, low sagebrush
 Uhaldri Thurber needlegrass, big sagebrush, bluebunch wheatgrass
 Inclusion 1 Idaho fescue, bluebunch wheatgrass, low sagebrush
 Inclusion 2 Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Inclusion 3 Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
Inclusion 4 Big sagebrush, bluebunch wheatgrass

Ecological Site

Devada 023XY031NV
Nipac 023XY031NV
Jhaid 023XY020NV
Inclusion 1 023XY017NV
Inclusion 2 023XY007NV
Inclusion 3 023XY015NV
Inclusion 4 023XY039NV

1174--Devada-Uhaldi association

Composition

Major Components

Devada very cobbly loam, 8 to 30 percent slopes--50 percent

Uhald stony loam, 8 to 30 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Reywat very stony loam, 15 to 30 percent slopes--8 percent

Inclusion 2 Reywat very stony loam, 4 to 15 percent slopes--4 percent

Inclusion 3 Westbutte stony loam, 15 to 30 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus

Devada--Landform Plateaus, geomorphic position summit

Uhald--Landform Plateaus, geomorphic position shoulder

Inclusion 1--Landform Plateaus, geomorphic position backslope, aspect south

Inclusion 2--Landform Plateaus, geomorphic position backslope

Inclusion 3--Landform Plateaus, geomorphic position, backslope, aspect north

Major Component Description

Devada Series

Elevation 5 500 to 6 300 feet

Precipitation About 12 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 30 percent cobbles, 30 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Uhaldi Series

Elevation 5 500 to 6 300 feet

Precipitation About 11 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface rock fragments 1 percent stones and boulders, 3 percent cobbles, 30 percent gravel

Surface layer texture Stony loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Devada Thurber needlegrass, bluebunch wheatgrass, low sagebrush

Uhaldi Thurber needlegrass, Wyoming big sagebrush, bluebunch wheatgrass

Inclusion 1 Big sagebrush, bluebunch wheatgrass

Inclusion 2 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 3 Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Ecological Site

Devada 023XY031NV

Jhaid 023XY020NV

Inclusion 1 023XY039NV

Inclusion 2 023XY020NV

Inclusion 3 023XY007NV

1175--Ferver-Tunnison association

Composition

Major Components

Ferver very cobbly silt loam, 2 to 8 percent slopes--85 percent

Tunnison cobbly clay, 0 to 4 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Lithic Xeric Haplargids, loamy, mixed mesic, very stony loam, 2 to 8 percent slopes--7 percent

Inclusion 2 Devada very cobbly loam, 2 to 8 percent slopes--6 percent

Inclusion 3 Boulder Lake silty clay, 0 to 2 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus

Ferver--Landform Plateaus, geomorphic position toeslope, shape of slope concave

Tunnison--Landform Depressions, shape of slope concave

Inclusion 1--Landform Plateaus, geomorphic position shoulder

Inclusion 2--Landform Plateaus

Inclusion 3--Landform Depressions

Major Component Description

Ferver Series

Elevation 5 200 to 5 500 feet

Precipitation About 11 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface rock fragments 1 percent stones and boulders, 25 percent cobbles, 20 percent gravel

Surface layer texture Very cobbly silt loam

Drainage class Well drained

Dominant parent material Alluvium derived from mixed rocks

Tunnison Series

Elevation 5 200 to 5 500 feet

Precipitation About 12 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 1 percent stones and boulders, 15 percent cobbles, 10 percent gravel
Surface layer texture Cobbly clay
Drainage class Well drained
Dominant parent material Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Forver Thurber needlegrass, bluegrass, low sagebrush
Tunnison Low sagebrush, rubber rabbitbrush
Inclusion 1 Sandberg bluegrass, low sagebrush
Inclusion 2 Bluebunch wheatgrass, bluegrass, low sagebrush
Inclusion 3 Silver sagebrush

Ecological Site

Forver 023XY059NV
Tunnison 023XY001NV
Inclusion 1 023XY021NV
Inclusion 2 023XY031NV
Inclusion 3 023XY003NV

1180--Ninemile-Karlo association

Composition

Major Components

Ninemile very cobbly loam, 2 to 15 percent slopes--70 percent
Karlo very cobbly clay, 0 to 8 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Toney very cobbly loam, 2 to 15 percent slopes--7 percent
Inclusion 2 Madeline very stony loam, 8 to 15 percent slopes--6 percent
Inclusion 3 Badgercamp very stony loam, 2 to 8 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus
Ninemile--Landform: Plateaus, shape of slope: convex
Karlo--Landform: Plateaus, shape of slope: concave
Inclusion 1--Landform: Plateaus, geomorphic position: backslope
Inclusion 2--Landform: Plateaus, geomorphic position: backslope
Inclusion 3--Landform: Plateaus, geomorphic position: shoulder

Major Component Description

Ninemile Series
Elevation 6 000 to 6 200 feet
Precipitation About 14 inches
Air temperature About 44 degrees
Frost-free season About 75 days
Surface rock fragments 20 percent cobbles, 30 percent gravel
Surface layer texture Very cobbly loam
Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Karlo Series

Elevation 6 000 to 6 200 feet
Precipitation About 10 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 30 percent cobbles, 20 percent gravel
Surface layer texture Very cobbly clay
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Ninemile Idaho fescue, bluebunch wheatgrass, low sagebrush
Karlo Low sagebrush, rubber rabbitbrush
Inclusion 1 Idaho fescue, bluebunch wheatgrass, low sagebrush
Inclusion 2 Antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
Inclusion 3 Curleaf mountain mahogany, mountain big sagebrush

Ecological Site

Ninemile 023XY017NV
Karlo 023XY001NV
Inclusion 1 023XY017NV
Inclusion 2 023XY015NV
Inclusion 3 023XY026NV

1181--Ninemile-Madeline-Tinpan association

Composition

Major Components

Ninemile very cobbly loam, 2 to 15 percent slopes--35 percent
Madeline very cobbly loam, 4 to 15 percent slopes--30 percent
Tinpan extremely cobbly loam, 0 to 8 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Karlo very cobbly clay, 0 to 4 percent slopes--9 percent
Inclusion 2 Newlands stony loam, 8 to 30 percent slopes--3 percent
Inclusion 3 Crocan extremely stony loam, 2 to 30 percent slopes--3 percent

Map Unit Setting

Landscape position Plateaus
Ninemile--Landform: Plateaus, geomorphic position: summit, shape of slope: convex
Madeline--Landform: Plateaus, geomorphic position: backslope
Tinpan--Landform: Plateaus, shape of slope: concave
Inclusion 1--Landform: Depressions
Inclusion 2--Landform: Plateaus, geomorphic position: backslope, shape of slope: concave, aspect: north

Inclusion 3—Landform: Plateaus, geomorphic position: shoulder

Major Component Description

Ninemile Series

Elevation: 6,000 to 7,000 feet

Precipitation: About 14 inches

Air temperature: About 44 degrees

Frost-free season: About 75 days

Surface rock fragments: 20 percent cobbles, 30 percent gravel

Surface layer texture: Very cobbly loam

Drainage class: Well drained

Dominant parent material: Residuum derived from volcanic rocks

Madeline Series

Elevation: 6,000 to 7,000 feet

Precipitation: About 13 inches

Air temperature: About 44 degrees

Frost-free season: About 80 days

Surface rock fragments: 20 percent cobbles, 30 percent gravel

Surface layer texture: Very cobbly loam

Drainage class: Well drained

Dominant parent material: Residuum derived from volcanic rocks

Tinpan Series

Elevation: 6,000 to 7,000 feet

Precipitation: About 14 inches

Air temperature: About 43 degrees

Frost-free season: About 70 days

Surface rock fragments: 40 percent cobbles, 20 percent gravel

Surface layer texture: Extremely cobbly loam

Drainage class: Well drained

Dominant parent material: Alluvium and colluvium derived from volcanic rocks

Dominant Present Vegetation

Ninemile: Idaho fescue, bluebunch wheatgrass, low sagebrush

Madeline: Antelope bitterbrush, bluebunch wheatgrass, bluegrass, mountain big sagebrush

Tinpan: Idaho fescue, bluebunch wheatgrass, bluegrass, low sagebrush

Inclusion 1: Low sagebrush, rubber rabbitbrush

Inclusion 2: Idaho fescue, mountain big sagebrush, needlegrass

Inclusion 3: Idaho fescue, bluebunch wheatgrass, low sagebrush, western juniper

Ecological Site

Ninemile: 023XY017NV

Madeline: 023XY015NV

Tinpan: 023XY017NV

Inclusion 1: 023XY001NV

Inclusion 2: 023XY065NV

Inclusion 3: 023XY095NV

1182—Ninemile-Westbutte complex, 2 to 15 percent slopes

Composition

Major Components

Ninemile: very cobbly loam, 2 to 15 percent slopes—60 percent

Westbutte: stony loam, 2 to 15 percent slopes—30 percent

Contrasting Inclusions

Inclusion 1: Devada: very stony loam, 4 to 30 percent slopes—8 percent

Inclusion 2: Vitotrandic Haploxerops: Ashy, friable, gravelly, loamy sand, 2 to 8 percent slopes—2 percent

Map Unit Setting

Landscape position: Plateaus and adjacent bosons

Ninemile—Landform: Plateaus, geomorphic position: summit

Westbutte—Landform: Plateaus, geomorphic position: backslope

Inclusion 1—Landform: Plateaus, geomorphic position: backslope, aspect south

Inclusion 2—Landform: inset fans

Major Component Description

Ninemile Series

Elevation: 6,000 to 6,400 feet

Precipitation: About 14 inches

Air temperature: About 44 degrees

Frost-free season: About 75 days

Surface rock fragments: 20 percent cobbles, 30 percent gravel

Surface layer texture: Very cobbly loam

Drainage class: Well drained

Dominant parent material: Residuum derived from volcanic rocks

Westbutte Series

Elevation: 6,000 to 6,400 feet

Precipitation: About 12 inches

Air temperature: About 45 degrees

Frost-free season: About 90 days

Surface rock fragments: 5 percent stones and boulders, 10 percent cobbles, 20 percent gravel

Surface layer texture: Stony loam

Drainage class: Well drained

Dominant parent material: Colluvium derived from volcanic rocks

Dominant Present Vegetation

Ninemile: Idaho fescue, bluebunch wheatgrass, low sagebrush

Westbutte: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Inclusion 1: Bluebunch wheatgrass, low sagebrush

Inclusion 2: Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Ecological Site

Ninemile: 023XY017NV

Westbutte: 023XY007NV

Inclusion 1: 023XY031NV

Inclusion 2 023XY096NV

1183--Ninemile-Westbutte association, 30 to 50 percent slopes

Composition

Major Components

Ninemile very cobbly loam, 30 to 50 percent slopes--60 percent

Westbutte stony loam, 30 to 50 percent slopes--25 percent

Contrasting Inclusions

Inclusion 1 Ashdos very gravelly fine sandy loam, 15 to 30 percent slopes--7 percent

Inclusion 2 Ashdre very gravelly sandy loam, 15 to 30 percent slopes--6 percent

Inclusion 3 Devada very cobbly loam, 4 to 15 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus

Ninemile--Landform Plateaus, geomorphic position backslope, shape of slope convex

Westbutte--Landform Plateaus, geomorphic position backslope, shape of slope convex

Inclusion 1--Landform Plateaus, geomorphic position shoulder

Inclusion 2--Landform Plateaus, geomorphic position backslope

Inclusion 3--Landform Plateaus, geomorphic position summit, aspect south

Major Component Description

Ninemile Series

Elevation 6,000 to 6,500 feet

Precipitation About 14 inches

Air temperature About 44 degrees

Frost-free season About 75 days

Surface rock fragments 20 percent cobbles, 30 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Westbutte Series

Elevation 6,000 to 6,500 feet

Precipitation About 12 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 2 percent stones and boulders, 10 percent cobbles, 20 percent gravel

Surface layer texture Stony loam

Drainage class Well drained

Dominant parent material Colluvium derived from volcanic rocks

Dominant Present Vegetation

Ninemile Idaho fescue, bluebunch wheatgrass, low sagebrush

Westbutte Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Inclusion 1 Idaho fescue, Thurber needlegrass, low sagebrush

Inclusion 2 Idaho fescue, mountain big sagebrush, needlegrass

Inclusion 3 Thurber needlegrass, bluebunch wheatgrass, low sagebrush

Ecological Site

Ninemile 023XY017NV

Westbutte 023XY007NV

Inclusion 1 023XY079NV

Inclusion 2 023XY094NV

Inclusion 3 023XY031NV

1184--Ninemile-Tinpan association

Composition

Major Components

Ninemile very cobbly loam, 2 to 30 percent slopes--65 percent

Tinpan extremely cobbly loam, 0 to 8 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Devada very stony loam, 4 to 15 percent slopes--7 percent

Inclusion 2 Linnic Arg xerols, clayey, montmorillonitic, frigid, extremely cobbly loam, 2 to 8 percent slopes--6 percent

Inclusion 3 Crocan extremely stony loam, 4 to 15 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus

Ninemile--Landform Plateaus, geomorphic position summit, shape of slope convex

Tinpan--Landform Plateaus, shape of slope concave

Inclusion 1--Landform Plateaus, geomorphic position summit, aspect south

Inclusion 2--Landform Plateaus, geomorphic position shoulder

Inclusion 3--Landform Plateaus, geomorphic position shoulder

Major Component Description

Ninemile Series

Elevation 6,000 to 6,800 feet

Precipitation About 14 inches

Air temperature About 44 degrees

Frost-free season About 75 days

Surface rock fragments 20 percent cobbles, 30 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Tinpan Series

Elevation 6,000 to 6,800 feet

Precipitation About 14 inches

Air temperature About 43 degrees

Frost-free season About 70 days

Surface rock fragments 40 percent cobbles, 20 percent gravel
Surface layer texture Extremely cobbly loam
Drainage class Well drained
Dominant parent material Alluvium and colluvium derived from volcanic rocks

Dominant Present Vegetation

Ninemile Idaho fescue bluebunch wheatgrass, low sagebrush
 Tinpan Idaho fescue bluebunch wheatgrass, bluegrass low sagebrush
 Inclusion 1 Bluebunch wheatgrass bluegrass low sagebrush
 Inclusion 2 Idaho fescue bluegrass, low sagebrush
 Inclusion 3 Idaho fescue bluebunch wheatgrass, low sagebrush western juniper

Ecological Site

Ninemile 023XY017NV
 Tinpan 023XY017NV
 Inclusion 1 023XY031NV
 Inclusion 2 023XY014NV
 Inclusion 3 023XY095NV

1185--Ninemile-Hart Camp association

Composition

Major Components

Ninemile very cobbly loam, 4 to 30 percent slopes--60 percent
 Hart Camp stony loam, 4 to 30 percent slopes--25 percent
Contrasting Inclusions
 Inclusion 1 Devada very stony loam, 4 to 30 percent slopes--5 percent
 Inclusion 2 Lithic Argixerolls, loamy-skeletal, mixed, frigid extremely gravelly loam, 4 to 15 percent slopes--5 percent
 Inclusion 3 Pachic Argixerolls, loamy-skeletal, mixed, frigid very gravelly loam, 4 to 15 percent slopes--4 percent
 Inclusion 4 Tussock stony loam, 30 to 50 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus
 Ninemile--Landform Plateaus, geomorphic position summit, shape of slope convex
 Hart Camp--Landform Plateaus, geomorphic position summit, shape of slope concave
 Inclusion 1--Landform Plateaus, geomorphic position backslope, position on slope lower, aspect south
 Inclusion 2--Landform Plateaus, geomorphic position shoulder
 Inclusion 3--Landform Plateaus, geomorphic position shoulder, aspect north
 Inclusion 4--Landform Plateaus, geomorphic position backslope, position on slope upper, aspect north

Major Component Description

Ninemile Series

Elevation 6,200 to 6,500 feet
Precipitation About 14 inches
Air temperature About 44 degrees
Frost-free season About 75 days
Surface rock fragments 20 percent cobbles, 30 percent gravel
Surface layer texture Very cobbly loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Hart Camp Series

Elevation 6,200 to 6,500 feet
Precipitation About 11 inches
Air temperature About 43 degrees
Frost-free season About 70 days
Surface rock fragments 2 percent stones, 5 percent cobbles, 15 percent gravel
Surface layer texture Stony loam
Drainage class Well drained
Dominant parent material Residuum derived from buffaceous rocks

Dominant Present Vegetation

Ninemile Idaho fescue bluebunch wheatgrass low sagebrush
 Hart Camp Idaho fescue antelope bitterbrush bluebunch wheatgrass, mountain big sagebrush
 Inclusion 1 Thurber needlegrass bluebunch wheatgrass low sagebrush
 Inclusion 2 Idaho fescue bluegrass low sagebrush
 Inclusion 3 Idaho fescue antelope bitterbrush bluebunch wheatgrass, mountain big sagebrush
 Inclusion 4 Idaho fescue mountain big sagebrush

Ecological Site

Ninemile 023XY017NV
 Hart Camp 023XY015NV
 Inclusion 1 023XY031NV
 Inclusion 2 023XY008NV
 Inclusion 3 023XY007NV
 Inclusion 4 023XY054NV

1186--Ninemile-Tinpan-Crocen association

Composition

Major Components

Ninemile very cobbly loam, 4 to 30 percent slopes--40 percent
 Tinpan extremely cobbly loam, 0 to 8 percent slopes--30 percent
 Crocen extremely stony loam, 2 to 15 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Devada very stony loam, 4 to 30 percent slopes--5 percent
 Inclusion 2 Karlo very cobbly clay, 0 to 8 percent slopes--3 percent

Inclusion 3 Vertic Argixerolls very fine montmorillonitic
frigid extremely cobbly loam, 2 to 8 percent slopes--1
percent

Inclusion 4 Madeira very stony loam, 4 to 15 percent
slopes--1 percent

Map Unit Setting

Landscape position Plateaus

Ninemile--Landform Plateaus geomorphic position
summit

Tinpan--Landform Plateaus, shape of slope concave

Crocán--Landform Plateaus, geomorphic position
shoulder

Inclusion 1--Landform Plateaus geomorphic position
backslope position on slope lower aspect west

Inclusion 2--Landform Plateaus, shape of slope concave

Inclusion 3--Landform Plateaus, geomorphic position
summit shape of slope concave

Inclusion 4--Landform Plateaus geomorphic position
backslope

Major Component Description

Ninemile Series

Elevation 6 000 to 6 800 feet

Precipitation About 14 inches

Air temperature About 44 degrees

Frost-free season About 75 days

Surface rock fragments 5 percent stones and boulders 20
percent cobbles, 15 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic
rocks

Tinpan Series

Elevation 6 000 to 6 800 feet

Precipitation About 14 inches

Air temperature About 43 degrees

Frost-free season About 70 days

Surface rock fragments 40 percent cobbles 20 percent
gravel

Surface layer texture Extremely cobbly loam

Drainage class Well drained

Dominant parent material Alluvium and colluvium derived
from volcanic rocks

Crocán Series

Elevation 6 000 to 6 800 feet

Precipitation About 14 inches

Air temperature About 43 degrees

Frost-free season About 70 days

Surface rock fragments 10 percent stones and boulders,
15 percent cobbles 20 percent gravel

Surface layer texture Extremely stony loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic
rocks

Dominant Present Vegetation

Ninemile Idaho fescue bluebunch wheatgrass, low
sagebrush

Tinpan Idaho fescue bluebunch wheatgrass, bluegrass
low sagebrush

Crocán Cusick bluegrass, Idaho fescue bluebunch
wheatgrass, low sagebrush western juniper

Inclusion 1 Thurber needlegrass bluebunch wheatgrass,
low sagebrush

Inclusion 2 Bluegrass, low sagebrush, rubber rabbitbrush

Inclusion 3 Idaho fescue bluegrass, low sagebrush

Inclusion 4 Idaho fescue, antelope bitterbrush bluebunch
wheatgrass, mountain big sagebrush

Ecological Site

Ninemile 023XY017NV

Tinpan 023XY017NV

Crocán 023XY095NV

Inclusion 1 023XY031NV

Inclusion 2 023XY001NV

Inclusion 3 023XY014NV

Inclusion 4 023XY015NV

1187--Ninemile-Tinpan-Hart Camp association

Composition

Major Components

Ninemile very stony loam, 4 to 30 percent slopes--40
percent

Tinpan extremely cobbly loam 0 to 8 percent slopes--30
percent

Hart Camp stony loam, 4 to 30 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Lithic Argixerolls clayey montmorillonitic
frigid extremely stony loam 2 to 15 percent slopes--8
percent

Inclusion 2 Devada very cobbly loam 4 to 30 percent
slopes--5 percent

Inclusion 3 Ashire stony loam 4 to 15 percent slopes--2
percent

Map Unit Setting

Landscape position Plateaus

Ninemile--Landform Plateaus geomorphic position
summit

Tinpan--Landform Plateaus, shape of slope concave

Hart Camp--Landform Plateaus geomorphic position
shoulder

Inclusion 1--Landform Plateaus geomorphic position
shoulder

Inclusion 2--Landform Plateaus geomorphic position
summit aspect south

Inclusion 3--Landform Ash flows

Major Component Description

Ninemile Series

Elevation 5,900 to 6 500 feet

Precipitation About 14 inches

Air temperature About 44 degrees

Frost-free season About 75 days

Surface rock fragments 5 percent stones and boulders 20
percent cobbles 15 percent gravel

Surface layer texture Very stony loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic
rocks

Tinpan Series*Elevation* 5 900 to 6 500 feet*Precipitation* About 14 inches*Air temperature* About 43 degrees*Frost-free season* About 70 days*Surface rock fragments* 40 percent cobbles, 20 percent gravel*Surface layer texture* Extremely cobbly loam*Drainage class* Well drained*Dominant parent material* Alluvium and colluvium derived from volcanic rocks**Hart Camp Series***Elevation* 5 900 to 6 500 feet*Precipitation* About 11 inches*Air temperature* About 43 degrees*Frost-free season* About 70 days*Surface layer texture* Stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from tuffaceous rocks**Dominant Present Vegetation**

Ninemile Idaho fescue bluebunch wheatgrass low sagebrush

Tinpan Idaho fescue bluebunch wheatgrass bluegrass low sagebrush

Hart Camp Idaho fescue, antelope bitterbrush, bluebunch wheatgrass mountain big sagebrush

Inclusion 1 Idaho fescue bluegrass low sagebrush

Inclusion 2 Thurber needlegrass bluebunch wheatgrass bluegrass low sagebrush

Inclusion 3 Idaho fescue mountain big sagebrush needlegrass

Ecological Site

Ninemile 023XY017NV

Tinpan 023XY017NV

Hart Camp 023XY015NV

Inclusion 1 023XY008NV

Inclusion 2 023XY031NV

Inclusion 3 023XY094NV

1188--Ninemile-Newlands-Hart Camp association**Composition****Major Components**

Ninemile very cobbly loam, 8 to 30 percent slopes--40 percent

Newlands stony loam, 15 to 30 percent slopes--25 percent

Hart Camp stony loam, 8 to 30 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Dose very stony loam, 30 to 50 percent slopes--7 percent

Inclusion 2 Cotant very gravelly loam, 4 to 15 percent slopes--4 percent

Inclusion 3 Devada very cobbly loam, 4 to 15 percent slopes--3 percent

Inclusion 4 Vitotrandic Haploxerolls Ashy frigid sandy loam, 0 to 4 percent slopes--1 percent

Map Unit Setting*Landscape position* Plateaus

Ninemile--Landform Plateaus geomorphic position summit

Newlands--Landform Plateaus geomorphic position backslope shape of slope concave aspect north

Hart Camp--Landform Plateaus geomorphic position shoulder

Inclusion 1--Landform Plateaus geomorphic position backslope aspect south

Inclusion 2--Landform Plateaus geomorphic position backslope

Inclusion 3--Landform Plateaus geomorphic position summit aspect south

Inclusion 4--Landform Plateaus geomorphic position toeslope shape of slope concave

Major Component Description**Ninemile Series***Elevation* 6 200 to 6 800 feet*Precipitation* About 14 inches*Air temperature* About 44 degrees*Frost-free season* About 75 days*Surface rock fragments* 20 percent cobbles 30 percent gravel*Surface layer texture* Very cobbly loam*Drainage class* Well drained*Dominant parent material* Residuum derived from volcanic rocks**Newlands Series***Elevation* 6 200 to 6 800 feet*Precipitation* About 14 inches*Air temperature* About 44 degrees*Frost-free season* About 60 days*Surface rock fragments* 2 percent stones and boulders 5 percent cobbles 15 percent gravel*Surface layer texture* Stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from volcanic rocks**Hart Camp Series***Elevation* 6 200 to 6 800 feet*Precipitation* About 11 inches*Air temperature* About 43 degrees*Frost-free season* About 70 days*Surface rock fragments* 2 percent stones and boulders 5 percent cobbles 15 percent gravel*Surface layer texture* Stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from tuffaceous rocks**Dominant Present Vegetation**

Ninemile Idaho fescue bluebunch wheatgrass low sagebrush

Newlands Idaho fescue mountain big sagebrush needlegrass snowberry

Hart Camp Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 1 Basal wildrye, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 2 Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, low sagebrush
 Inclusion 3 Bluebunch wheatgrass, low sagebrush
 Inclusion 4 Nevada bluegrass, rush

Ecological Site

Ninemile 023XY017NV
 Newlands 023XY065NV
 Hart Camp 023XY016NV
 Inclusion 1 023XY016NV
 Inclusion 2 023XY017NV
 Inclusion 3 023XY031NV
 Inclusion 4 023XY082NV

1189--Ninemile-Badgercamp-Crocán association

Composition

Major Components

Ninemile very cobbly loam, 4 to 30 percent slopes--35 percent
 Badgercamp bouldery loam, 4 to 30 percent slopes--30 percent
 Crocán extremely stony loam, 2 to 15 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Hart Camp stony loam, 4 to 30 percent slopes--7 percent
 Inclusion 2 Newlands stony loam, 8 to 30 percent slopes--5 percent
 Inclusion 3 Hackwood gravelly loam, 15 to 30 percent slopes--2 percent
 Inclusion 4 Vertic Palexerols, very fine montmorillonitic frigid very cobbly loam, 2 to 8 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus
Ninemile--Landform Plateaus, geomorphic position summit
Badgercamp--Landform Plateaus, geomorphic position shoulder
Crocán--Landform Plateaus, geomorphic position shoulder
Inclusion 1--Landform Plateaus, geomorphic position shoulder
Inclusion 2--Landform Plateaus, geomorphic position backslope, shape of slope concave, aspect north
Inclusion 3--Landform Plateaus, geomorphic position backslope, position on slope upper, aspect north
Inclusion 4--Landform Plateaus, geomorphic position toeslope, shape of slope convex

Major Component Description

Ninemile Series

Elevation 6,200 to 6,800 feet
Precipitation About 14 inches

Air temperature About 44 degrees
Frost-free season About 75 days
Surface rock fragments 20 percent cobbles, 30 percent gravel
Surface layer texture Very cobbly loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Badgercamp Series

Elevation 6,200 to 6,800 feet
Precipitation About 16 inches
Air temperature About 40 degrees
Frost-free season About 50 days
Surface rock fragments 2 percent stones and boulders, 2 percent cobbles, 10 percent gravel
Surface layer texture Bouldery loam
Drainage class Well drained
Dominant parent material Residuum derived from tuffaceous rocks

Crocán Series

Elevation 6,200 to 6,800 feet
Precipitation About 14 inches
Air temperature About 43 degrees
Frost-free season About 70 days
Surface rock fragments 10 percent stones and boulders, 15 percent cobbles, 20 percent gravel
Surface layer texture Extremely stony loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Ninemile Idaho fescue, bluebunch wheatgrass, low sagebrush
 Badgercamp Idaho fescue, big sagebrush, curlleaf mountainmahogany, needlegrass
 Crocán Cusick bluegrass, Idaho fescue, bluebunch wheatgrass, low sagebrush, western juniper
 Inclusion 1 Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 2 Idaho fescue, mountain big sagebrush, needlegrass, snowberry
 Inclusion 3 Quaking aspen
 Inclusion 4 Idaho fescue, low sagebrush

Ecological Site

Ninemile 023XY017NV
 Badgercamp 023XY026NV
 Crocán 023XY095NV
 Inclusion 1 023XY015NV
 Inclusion 2 023XY065NV
 Inclusion 3 023XY028NV
 Inclusion 4 023XY014NV

1190--Ferver-Nitpac association

Composition

Major Components

Ferver very gravelly loam, 2 to 15 percent slopes--50 percent

Nitpac very cobbly loam. 2 to 15 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Tunnison cobbly clay. 0 to 8 percent slopes--9 percent

Inclusion 2 Devada very stony loam. 2 to 15 percent slopes--3 percent

Inclusion 3 Boulder Lake silty clay. 0 to 2 percent slopes--2 percent

Inclusion 4 Weimer clay. 0 to 2 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus

Ferver--Landform Plateaus geomorphic position toeslope shape of slope concave

Nitpac--Landform Plateaus geomorphic position backslope

Inclusion 1--Landform Depressions geomorphic position summit shape of slope concave

Inclusion 2--Landform Plateaus

Inclusion 3--Landform Depressions

Inclusion 4--Landform Depressions

Major Component Description

Ferver Series

Elevation 5 300 to 5 600 feet

Precipitation About 11 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface rock fragments 1 percent cobbles, 45 percent gravel

Surface layer texture Very gravelly loam

Drainage class Well drained

Dominant parent material Alluvium derived from mixed rocks

Nitpac Series

Elevation 5 300 to 5 600 feet

Precipitation About 11 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface rock fragments 1 percent stones and boulders, 15 percent cobbles, 20 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Alluvium derived from mixed rocks

Dominant Present Vegetation

Ferver Thurber needlegrass, bluegrass, low sagebrush

Nitpac Bluebunch wheatgrass, low sagebrush

Inclusion 1 Bluegrass, rubber rabbitbrush

Inclusion 2 Thurber needlegrass, bluebunch wheatgrass, low sagebrush

Inclusion 3 Bluegrass, silver sagebrush

Inclusion 4 Sedge, silver sagebrush

Ecological Site

Ferver 023XY059NV

Nitpac 023XY031NV

Inclusion 1 023XY001NV

Inclusion 2 023XY031NV

Inclusion 3 023XY003NV

Inclusion 4 023XY023NV

1195--Bitner-Ashcamp association

Composition

Major Components

Bitner gravelly sandy loam. 4 to 30 percent slopes--50 percent

Ashcamp sandy loam. 2 to 15 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Reywat stony loam. 15 to 50 percent slopes--6 percent

Inclusion 2 Frentera gravelly sandy loam. 15 to 30 percent slopes--5 percent

Inclusion 3 Powlow very gravelly loam. 2 to 15 percent slopes--4 percent

Map Unit Setting

Landscape position Plateaus and adjacent basins

Bitner--Landform Plateaus geomorphic position shoulder

Ashcamp--Landform Plateaus geomorphic position summit

Inclusion 1--Landform Plateaus geomorphic position backslope aspect south

Inclusion 2--Landform Plateaus geomorphic position backslope aspect north

Inclusion 3--Landform Fan remnants

Major Component Description

Bitner Series

Elevation 5 600 to 6 200 feet

Precipitation About 12 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 15 percent gravel

Surface layer texture Gravelly sandy loam

Drainage class Well drained

Dominant parent material Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Ashcamp Series

Elevation 5 600 to 6 200 feet

Precipitation About 13 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface layer texture Sandy loam

Drainage class Well drained

Dominant parent material Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Dominant Present Vegetation

Bitner Idaho fescue, Thurber needlegrass, big sagebrush, bluebunch wheatgrass, bluegrass

Ashcamp Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 1 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 2 Idaho fescue, Thurber needlegrass, big sagebrush

Inclusion 3 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Ecological Site

Btner 023XY096NV
 Ashcamp 023XY020NV
 Inclusion 1 023XY039NV
 Inclusion 2 023XY072NV
 Inclusion 3 023XY020NV

1205--Davey loamy fine sand, 2 to 15 percent slopes**Composition****Major Components**

Davey loamy fine sand 2 to 15 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Paypoint gravelly fine sandy loam, 0 to 2 percent slopes--7 percent
 Inclusion 2 Zoravista fine sand, 4 to 15 percent slopes--5 percent
 Inclusion 3 Bombadil very stony loam, cool, 8 to 15 percent slopes--3 percent

Map Unit Setting

Landscape position Intermontane basins
Davey--Landform Beach terraces
Inclusion 1--Landform Lagoons
Inclusion 2--Landform Dunes
Inclusion 3--Landform Plateaus, geomorphic position summit

Major Component Description**Davey Series**

Elevation 5 500 to 5 700 feet
Precipitation About 9 inches
Air temperature About 45 degrees
Frost-free season About 100 days
Surface layer texture Loamy fine sand
Drainage class Somewhat excessively drained
Dominant parent material Alluvium derived from mixed rocks

Dominant Present Vegetation

Davey Indian ricegrass, basin big sagebrush, needleandthread
 Inclusion 1 Basin wildrye, big sagebrush
 Inclusion 2 Indian ricegrass, basin big sagebrush
 Inclusion 3 Thurber needlegrass, Wyoming big sagebrush, bottlebrush squirreltail

Ecological Site

Davey 023XY051NV
 Inclusion 1 023XY082NV
 Inclusion 2 023XY011NV
 Inclusion 3 023XY006NV

1206--Davey-Corral association**Composition****Major Components**

Davey loamy fine sand, 2 to 15 percent slopes--50 percent

Corral loamy fine sand 2 to 15 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Langston very gravelly loamy fine sand 2 to 15 percent slopes--5 percent
 Inclusion 2 Zoravista fine sand, 2 to 15 percent slopes--5 percent
 Inclusion 3 Saraph gravelly loamy sand 2 to 15 percent slopes--3 percent
 Inclusion 4 Paypoint gravelly sandy loam 0 to 2 percent slopes--2 percent

Map Unit Setting

Landscape position Intermontane basins
Davey--Landform Beach terraces
Corral--Landform Pediments
Inclusion 1--Landform Longshore bars (relict)
Inclusion 2--Landform Dunes
Inclusion 3--Landform Pediments, geomorphic position summit, shape of slope convex
Inclusion 4--Landform Lagoons

Major Component Description**Davey Series**

Elevation 5 550 to 5 800 feet
Precipitation About 9 inches
Air temperature About 45 degrees
Frost-free season About 100 days
Surface layer texture Loamy fine sand
Drainage class Somewhat excessively drained
Dominant parent material Alluvium derived from mixed rocks

Corral Series

Elevation 5 500 to 5 800 feet
Precipitation About 9 inches
Air temperature About 45 degrees
Frost-free season About 80 days
Surface layer texture Loamy fine sand
Drainage class Well drained
Dominant parent material Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Davey Indian ricegrass, basin big sagebrush, needleandthread
 Corral Indian ricegrass, basin big sagebrush, needleandthread
 Inclusion 1 Indian ricegrass, basin big sagebrush, needleandthread
 Inclusion 2 Basin big sagebrush, needleandthread
 Inclusion 3 Thurber needlegrass, Wyoming big sagebrush, needlegrass
 Inclusion 4 Douglas rabbitbrush, basin wildrye, big sagebrush, bottlebrush squirreltail, rubber rabbitbrush

Ecological Site

Davey 023XY051NV
 Corral 023XY051NV
 Inclusion 1 023XY051NV
 Inclusion 2 023XY011NV
 Inclusion 3 023XY006NV
 Inclusion 4 023XY082NV

1210--Mazuma-Bighat association**Composition****Major Components**

Mazuma fine sandy loam, 2 to 4 percent slopes--50 percent

Bighat very stony sandy loam, 4 to 15 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Mazuma fine sandy loam, alkali, 2 to 8 percent slopes--8 percent

Inclusion 2 Raglan fine sandy loam, 0 to 4 percent slopes--7 percent

Map Unit Setting

Landscape position: Boisons

Mazuma--Landform: Lake terraces

Bighat--Landform: Beach terraces

Inclusion 1--Landform: Inset fans

Inclusion 2--Landform: Lake terraces, position on slope lower

Major Component Description**Mazuma Series**

Elevation: 4 500 to 4 700 feet

Precipitation: About 6 inches

Air temperature: About 50 degrees

Frost-free season: About 100 days

Surface rock fragments: 10 percent gravel

Surface layer texture: Fine sandy loam

Drainage class: Well drained

Dominant parent material: Alluvium derived from lacustrine sediments

Bighat Series

Elevation: 4 500 to 4 700 feet

Precipitation: About 6 inches

Air temperature: About 47 degrees

Frost-free season: About 100 days

Surface rock fragments: 5 percent stones and boulders, 20 percent cobbles, 15 percent gravel

Surface layer texture: Very stony sandy loam

Drainage class: Well drained

Dominant parent material: Alluvium derived from mixed rocks

Dominant Present Vegetation

Mazuma: Bud sagebrush, shadscale

Bighat: Bud sagebrush, shadscale

Inclusion 1: Black greasewood, shadscale

Inclusion 2: Black greasewood, shadscale

Ecological Site

Mazuma: 024XY065NV

Bighat: 024XY002NV

Inclusion 1: 024XY003NV

Inclusion 2: 024XY003NV

1215--Raglan-Isolde association**Composition****Major Components**

Raglan very fine sandy loam, 0 to 2 percent slopes--50 percent

Isolde fine sand, 2 to 15 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Mazuma silt loam, 0 to 2 percent slopes--dry--6 percent

Inclusion 2 Xeric Haplocambids, coarse-loamy, mixed mesic fine sandy loam, 0 to 2 percent slopes--5 percent

Inclusion 3 Haploduridic Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic fine sandy loam, 0 to 2 percent slopes--4 percent

Map Unit Setting

Landscape position: Boisons

Raglan--Landform: Lake terraces

Isolde--Landform: Dunes

Inclusion 1--Landform: Lake terraces

Inclusion 2--Landform: Drainageways

Inclusion 3--Landform: Inset fans

Major Component Description**Raglan Series**

Elevation: 4 500 to 4 600 feet

Precipitation: About 6 inches

Air temperature: About 50 degrees

Frost-free season: About 100 days

Surface layer texture: Very fine sandy loam

Drainage class: Well drained

Dominant parent material: Alluvium derived from lacustrine sediments

Isolde Series

Elevation: 4 500 to 4 600 feet

Precipitation: About 6 inches

Air temperature: About 50 degrees

Frost-free season: About 100 days

Surface layer texture: Fine sand

Drainage class: Excessively drained

Dominant parent material: Eolian material

Dominant Present Vegetation

Raglan: Black greasewood, bud sagebrush, shadscale

Isolde: Indian ricegrass, black greasewood, spiny hopsage

Inclusion 1: Bottlebrush, squirreltail, shadscale

Inclusion 2: Wyoming big sagebrush, spiny hopsage

Inclusion 3: Basin wildrye, big sagebrush, black greasewood, western wheatgrass

Ecological Site

Raglan: 024XY003NV

Isolde: 024XY065NV

Inclusion 1: 024XY067NV

Inclusion 2: 024XY020NV

Inclusion 3: 024XY006NV

1220--Schamp very stony loam, 4 to 15 percent slopes**Composition****Major Components**

Schamp very stony loam, 4 to 15 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Schamp very stony loam, 15 to 30 percent slopes--9 percent

Inclusion 2 Chime very gravelly loam, 2 to 30 percent slopes--4 percent

Inclusion 3 Pachic Haploxerolis, loamy-skeletal, mixed, mesic very gravelly loam, 2 to 30 percent slopes--1 percent

Inclusion 4 Xeric Haplocambids, fine-loamy, mixed, mesic fine sandy loam, 4 to 15 percent slopes--1 percent

Map Unit Setting

Landscape position: Hills and intermontane basins

Schamp--Landform: Hills, geomorphic position: backslope

Inclusion 1--Landform: Hills, geomorphic position: toeslope

Inclusion 2--Landform: Hills, geomorphic position: toeslope

Inclusion 3--Landform: Inset fans

Inclusion 4--Landform: Drainageways

Major Component Description**Schamp Series**

Elevation: 4 800 to 5 100 feet

Precipitation: About 10 inches

Air temperature: About 46 degrees

Frost-free season: About 80 days

Surface rock fragments: 10 percent stones and boulders, 5 percent cobbles, 15 percent gravel

Surface layer texture: Very stony loam

Drainage class: Well drained

Dominant parent material: Alluvium derived from volcanic rocks

Dominant Present Vegetation

Schamp: Thurber needlegrass, Wyoming big sagebrush

Inclusion 1: Thurber needlegrass, Wyoming big sagebrush

Inclusion 2: Wyoming big sagebrush, spiny hopsage

Inclusion 3: Basin wildrye, big sagebrush

Inclusion 4: Basin wildrye, big sagebrush

Ecological Site

Schamp 023XY006NV

Inclusion 1 023XY006NV

Inclusion 2 024XY020NV

Inclusion 3 023XY009NV

Inclusion 4 023XY005NV

1221--Schamp very stony loam, 30 to 50 percent slopes**Composition****Major Components**

Schamp very stony loam, 30 to 50 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Zymans very stony loam, 30 to 50 percent slopes--8 percent

Inclusion 2 McConnel stony sandy loam, 2 to 15 percent slopes--4 percent

Inclusion 3 Chime very gravelly loam, 4 to 15 percent slopes--3 percent

Map Unit Setting

Landscape position: Hills and intermontane basins

Schamp--Landform: Hills, geomorphic position: shoulder

Inclusion 1--Landform: Hills, geomorphic position:

backslope, aspect: north

Inclusion 2--Landform: Alluvial fans; position on slope: lower

Inclusion 3--Landform: Hills, geomorphic position: summit

Major Component Description**Schamp Series**

Elevation: 4 800 to 5 400 feet

Precipitation: About 10 inches

Air temperature: About 46 degrees

Frost-free season: About 80 days

Surface rock fragments: 10 percent stones and boulders, 5 percent cobbles, 15 percent gravel

Surface layer texture: Very stony loam

Drainage class: Well drained

Dominant parent material: Alluvium derived from volcanic rocks

Dominant Present Vegetation

Schamp: Thurber needlegrass, Wyoming big sagebrush

Inclusion 1: Bluebunch wheatgrass, mountain big sagebrush

Inclusion 2: Basin wildrye, big sagebrush

Inclusion 3: Wyoming big sagebrush, spiny hopsage

Ecological Site

Schamp 023XY006NV

Inclusion 1 023XY020NV

Inclusion 2 023XY005NV

Inclusion 3 024XY020NV

1223--Schamp loam, 4 to 15 percent slopes**Composition****Major Components**

Schamp loam, 4 to 15 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Old Camp very stony loam, 2 to 8 percent slopes--9 percent

Inclusion 2 Langston gravelly sandy loam, 2 to 15 percent slopes--3 percent

Inclusion 3 Davey loamy fine sand, 1 to 15 percent slopes--3 percent

Map Unit Setting

Landscape position: Hills and intermontane basins

Schamp--Landform: Hills, geomorphic position: summit

Inclusion 1--Landform: Plateaus, geomorphic position: summit

Inclusion 2—Landform: Longshore bars (relict)
Inclusion 3—Landform: Beach terraces

Major Component Description

Schamp Series

Elevation: 5 000 to 6 000 feet
Precipitation: About 10 inches
Air temperature: About 46 degrees
Frost-free season: About 80 days
Surface rock fragments: 15 percent gravel
Surface layer texture: Loam
Drainage class: Well drained
Dominant parent material: Alluvium derived from volcanic rocks

Dominant Present Vegetation

Schamp: Thurber needlegrass, Wyoming big sagebrush
Inclusion 1: Thurber needlegrass, Wyoming big sagebrush
Inclusion 2: Thurber needlegrass, Wyoming big sagebrush
Inclusion 3: Indian ricegrass, basin big sagebrush, needleandthread

Ecological Site

Schamp: 023XY006NV
Inclusion 1: 023XY006NV
Inclusion 2: 023XY006NV
Inclusion 3: 023XY051NV

1230--Raglan-Mazuma association

Composition

Major Components

Raglan: very fine sandy loam, 0 to 2 percent slopes--45 percent
Mazuma: fine sandy loam, 0 to 2 percent slopes--40 percent

Contrasting Inclusions

Inclusion 1: Xeric Haplocambids, loamy-skeletal mixed mesic fine sandy loam, 0 to 2 percent slopes--6 percent
Inclusion 2: Solonchale fine sand, 2 to 15 percent slopes--6 percent
Inclusion 3: Xeric Haplocambids, coarse loamy mixed mesic fine sand, 0 to 2 percent slopes--2 percent
Inclusion 4: Skullwak silt loam, 0 to 2 percent slopes--1 percent

Map Unit Setting

Landscape position: Boisons
Raglan--Landform: Lake terraces
Mazuma--Landform: Lake terraces
Inclusion 1--Landform: Inset fans
Inclusion 2--Landform: Dunes
Inclusion 3--Landform: Lake terraces, shape of slope concave
Inclusion 4--Landform: Swales

Major Component Description

Raglan Series

Elevation: 4 550 to 4 600 feet
Precipitation: About 6 inches

Air temperature: About 50 degrees
Frost-free season: About 100 days
Surface layer texture: Very fine sandy loam
Drainage class: Well drained
Dominant parent material: Alluvium derived from lacustrine sediments

Mazuma Series

Elevation: 4 550 to 4 600 feet
Precipitation: About 6 inches
Air temperature: About 50 degrees
Frost-free season: About 100 days
Surface rock fragments: 10 percent gravel
Surface layer texture: Fine sandy loam
Drainage class: Well drained
Dominant parent material: Alluvium derived from lacustrine sediments

Dominant Present Vegetation

Raglan: Black greasewood, bottlebrush squirrel tail, bud sagebrush, shadscale
Mazuma: Bud sagebrush, shadscale
Inclusion 1: Basin wildrye, big sagebrush, black greasewood, western wheatgrass
Inclusion 2: Indian ricegrass, black greasewood, spiny hopsage
Inclusion 3: Wyoming big sagebrush, spiny hopsage
Inclusion 4: Nevada bluegrass, alkali grass, sand saltgrass

Ecological Site

Raglan: 024XY003NV
Mazuma: 024XY066NV
Inclusion 1: 024XY006NV
Inclusion 2: 024XY066NV
Inclusion 3: 024XY020NV
Inclusion 4: 023XY002NV

1235--Chime gravelly loam, 4 to 15 percent slopes

Composition

Major Components

Chime: gravelly loam, 4 to 15 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1: Schamp stony loam, 4 to 30 percent slopes--8 percent
Inclusion 2: Xeric Haplargids, loamy mixed mesic stony loam, 15 to 30 percent slopes--6 percent
Inclusion 3: Xeric Haplocambids, fine-silty mixed mesic gravelly loam, 2 to 8 percent slopes--1 percent

Map Unit Setting

Landscape position: Hills and intermontane basins
Chime--Landform: Pediments, geomorphic position backslope
Inclusion 1--Landform: Hills, geomorphic position toeslope
Inclusion 2--Landform: Plateaus, geomorphic position backslope
Inclusion 3--Landform: Fan skirts

Major Component Description**Chime Series***Elevation* 4 700 to 4 900 feet*Precipitation* About 9 inches*Air temperature* About 47 degrees*Frost-free season* About 100 days*Surface rock fragments* 20 percent gravel*Surface layer texture* Gravelly loam*Drainage class* Well drained*Dominant parent material* Residuum derived from tuffaceous rocks**Dominant Present Vegetation**

Chime Wyoming big sagebrush spiny hopsage

inclusion 1 Thurber needlegrass Wyoming big sagebrush

inclusion 2 Bud sagebrush shadscale

inclusion 3 Basin big sagebrush basin wildrye

Ecological Site

Chime 024XY020NV

Inclusion 1 023XY006NV

Inclusion 2 024XY025NV

Inclusion 3 023XY005NV

1240--Toney-Millerlux-Hart Camp association**Composition****Major Components**

Toney extremely cobbly loam, 2 to 8 percent slopes--40 percent

Millerlux very cobbly loam, 2 to 15 percent slopes--30 percent

Hart Camp stony loam, 4 to 15 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 N. nemile very stony loam, 2 to 8 percent slopes--8 percent

Inclusion 2 Karlo very cobbly clay, 0 to 4 percent slopes--8 percent

Inclusion 3 Hapgood stony loam, 8 to 15 percent slopes--1 percent

Map Unit Setting*Landscape position* Plateaus and hills

Toney--Landform Hills, geomorphic position backslope shape of slope concave

Millerlux--Landform Hills, geomorphic position summit shape of slope convex

Hart Camp--Landform Hills, geomorphic position toeslope position on slope lower

Inclusion 1--Landform Plateaus

Inclusion 2--Landform Depressions shape of slope concave

Inclusion 3--Landform Plateaus, geomorphic position backslope aspect north

Major Component Description**Toney Series***Elevation* 6 000 to 6 300 feet*Precipitation* About 13 inches*Air temperature* About 42 degrees*Frost-free season* About 60 days*Surface rock fragments* 10 percent stones and boulders 30 percent cobbles, 25 percent gravel*Surface layer texture* Extremely cobbly loam*Drainage class* Well drained*Dominant parent material* Residuum derived from tuffaceous rocks**Millerlux Series***Elevation* 6 000 to 6 300 feet*Precipitation* About 12 inches*Air temperature* About 43 degrees*Frost-free season* About 60 days*Surface rock fragments* 25 percent cobbles, 20 percent gravel*Surface layer texture* Very cobbly loam*Drainage class* Well drained*Dominant parent material* Residuum derived from tuffaceous rocks**Hart Camp Series***Elevation* 6 000 to 6 300 feet*Precipitation* About 11 inches*Air temperature* About 43 degrees*Frost-free season* About 70 days*Surface rock fragments* 2 percent stones and boulders 5 percent cobbles, 15 percent gravel*Surface layer texture* Stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from tuffaceous rocks**Dominant Present Vegetation**

Toney Idaho fescue bluebunch wheatgrass low sagebrush

Millerlux Sandberg bluegrass low sagebrush

Hart Camp Idaho fescue antelope bitterbrush bluebunch wheatgrass, mountain big sagebrush

Inclusion 1 Idaho fescue bluebunch wheatgrass low sagebrush

Inclusion 2 Low sagebrush rubber rabbitbrush

Inclusion 3 Idaho fescue mountain big sagebrush needlegrass

Ecological Site

Toney 023XY017NV

Millerlux 023XY021NV

Hart Camp 023XY015NV

Inclusion 1 023XY017NV

Inclusion 2 023XY001NV

Inclusion 3 023XY006NV

1245--Saraph-Uhaldi-Fretera association**Composition****Major Components**

Saraph very gravelly sandy loam, 4 to 30 percent slopes--45 percent

Uhaldi stony loam, 4 to 30 percent slopes--25 percent

Fretera gravelly sandy loam, 15 to 30 percent slopes--15 percent

Contrasting Inclusions

- Inclusion 1 Paypoint sandy loam, 0 to 2 percent slopes--7 percent
 Inclusion 2 Old Camp very stony loam, 4 to 15 percent slopes--5 percent
 Inclusion 3 Powwow very gravelly loam, 2 to 8 percent slopes--2 percent
 Inclusion 4 Esmud very gravelly fine sandy loam, 2 to 15 percent slopes--1 percent

Map Unit Setting

- Landscape position* Hills and intermontane basins
Saraph--Landform Ash flows, geomorphic position summit, shape of slope convex
Uhaldi--Landform Hills, geomorphic position backslope, shape of slope concave
Frentera--Landform Ash flows, geomorphic position backslope
Inclusion 1--Landform Lagoons
Inclusion 2--Landform Plateaus
Inclusion 3--Landform Fan remnants
Inclusion 4--Landform Fan remnants, geomorphic position summit

Major Component Description**Saraph Series**

- Elevation* 5 600 to 6 100 feet
Precipitation About 10 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 50 percent gravel
Surface layer texture Very gravelly sandy loam
Drainage class Well drained
Dominant parent material Residuum derived from tuffaceous rocks

Uhaldi Series

- Elevation* 5 600 to 6 100 feet
Precipitation About 11 inches
Air temperature About 46 degrees
Frost-free season About 90 days
Surface rock fragments 1 percent stones and boulders, 3 percent cobbles, 30 percent gravel
Surface layer texture Stony loam
Drainage class Well drained
Dominant parent material Residuum derived from tuffaceous rocks

Frentera Series

- Elevation* 5 600 to 6 100 feet
Precipitation About 12 inches
Air temperature About 45 degrees
Frost-free season About 80 days
Surface rock fragments 30 percent gravel
Surface layer texture Gravelly sandy loam
Drainage class Well drained
Dominant parent material Residuum derived from tuffaceous rocks

Dominant Present Vegetation

- Saraph Thurber needlegrass, Wyoming big sagebrush, bluegrass

- Uhaldi Thurber needlegrass, Wyoming big sagebrush, bluebunch wheatgrass
 Frentera Idaho fescue, Thurber needlegrass, mountain big sagebrush
 Inclusion 1 Basin big sagebrush, basin wildrye, bluegrass
 Inclusion 2 Thurber needlegrass, Wyoming big sagebrush, bluegrass
 Inclusion 3 Thurber needlegrass, big sagebrush, bluebunch wheatgrass
 Inclusion 4 Thurber needlegrass, bluegrass, low sagebrush

Ecological Site

- Saraph 023XY006NV
 Uhaldi 023XY020NV
 Frentera 023XY072NV
 Inclusion 1 023XY082NV
 Inclusion 2 023XY006NV
 Inclusion 3 023XY020NV
 Inclusion 4 023XY059NV

1250--Ashone-Ashdos-Bearbutte association**Composition****Major Components**

- Ashone very gravelly fine sandy loam, 4 to 30 percent slopes--40 percent
 Ashdos very gravelly fine sandy loam, 4 to 30 percent slopes--35 percent
 Bearbutte fine sandy loam, 4 to 15 percent slopes--10 percent

Contrasting Inclusions

- Inclusion 1 Vitrixerandic Tornorthents, Ashy-skeletal, mesic, shallow very gravelly sandy loam, 2 to 15 percent slopes--10 percent
 Inclusion 2 Welch fine sandy loam, 2 to 8 percent slopes, rarely flooded--3 percent
 Inclusion 3 Rock outcrop--2 percent

Map Unit Setting

- Landscape position* Mountains and intermontane basins
Ashone--Landform Ash flows, geomorphic position backslope, aspect south
Ashdos--Landform Ash flows, geomorphic position backslope, aspect north
Bearbutte--Landform Mountains, geomorphic position backslope, shape of slope concave
Inclusion 1--Landform Alluvial fans
Inclusion 2--Landform Depressions, shape of slope concave
Inclusion 3--Landform Mountains

Major Component Description**Ashone Series**

- Elevation* 5,900 to 6 400 feet
Precipitation About 14 inches
Air temperature About 45 degrees
Frost-free season About 80 days
Surface rock fragments 1 percent cobbles, 50 percent gravel
Surface layer texture Very gravelly fine sandy loam
Drainage class Well drained

Dominant parent material: Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Ashdos Series

Elevation: 5 900 to 6 400 feet

Precipitation: About 14 inches

Air temperature: About 44 degrees

Frost-free season: About 80 days

Surface rock fragments: 40 percent gravel

Surface layer texture: Very gravelly fine sandy loam

Drainage class: Well drained

Dominant parent material: Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Bearbutte Series

Elevation: 5 900 to 6 400 feet

Precipitation: About 13 inches

Air temperature: About 43 degrees

Frost-free season: About 80 days

Surface rock fragments: 10 percent gravel

Surface layer texture: Fine sandy loam

Drainage class: Well drained

Dominant parent material: Colluvium derived from volcanic rocks

Dominant Present Vegetation

Ashone Idaho fescue, Thurber needlegrass, antelope bitterbrush, low sagebrush

Ashdos Idaho fescue, Thurber needlegrass, low sagebrush

Bearbutte Idaho fescue, Thurber needlegrass, antelope bitterbrush, mountain big sagebrush

inclusion 1 Sandberg bluegrass, low sagebrush

inclusion 2 Nevada bluegrass, Rocky Mountain iris, big sagebrush

inclusion 3 None

Ecological Site

Ashone 023XY078NV

Ashdos 023XY079NV

Bearbutte 023XY066NV

inclusion 1 023XY021NV

inclusion 2 023XY013NV

inclusion 3 none

1251--Ashone-Ashdos-Ashtre association

Composition

Major Components

Ashone very gravelly fine sandy loam, 4 to 30 percent slopes--35 percent

Ashdos very gravelly fine sandy loam, 4 to 30 percent slopes--30 percent

Ashtre very gravelly loam, 4 to 15 percent slopes--25 percent

Contrasting Inclusions

inclusion 1 Lithic Argixerolls, clayey skeletal montmorillonitic, frigid very stony sandy loam, 4 to 15 percent slopes--4 percent

inclusion 2 Uhalgi very gravelly loam, 4 to 30 percent slopes--2 percent

inclusion 3 Vitric Argixerolls, Ashy, frigid sandy loam, 0 to 4 percent slopes--2 percent

inclusion 4 Vitric Argixerolls, Ashy, mesic gravelly sandy loam, 2 to 8 percent slopes--2 percent

Map Unit Setting

Landscape position: Plateaus and adjacent bosons

Ashone--Landform Ash flows, geomorphic position backslope, aspect south

Ashdos--Landform Ash flows, geomorphic position backslope, aspect north

Ashtre--Landform Ash flows, geomorphic position backslope, shape of slope concave, aspect north

inclusion 1--Landform Plateaus, geomorphic position shoulder

inclusion 2--Landform Hills, aspect south

inclusion 3--Landform Inset fans

inclusion 4--Landform Alluvial fans, geomorphic position backslope, shape of slope concave

Major Component Description

Ashone Series

Elevation: 5 900 to 6 400 feet

Precipitation: About 14 inches

Air temperature: About 45 degrees

Frost-free season: About 80 days

Surface layer texture: Very gravelly fine sandy loam

Surface rock fragments: 1 percent cobbles, 50 percent gravel

Drainage class: Well drained

Dominant parent material: Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Ashdos Series

Elevation: 5 900 to 6 400 feet

Precipitation: About 14 inches

Air temperature: About 44 degrees

Frost-free season: About 80 days

Surface rock fragments: 40 percent gravel

Surface layer texture: Very gravelly fine sandy loam

Drainage class: Well drained

Dominant parent material: Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Ashtre Series

Elevation: 5 900 to 6 400 feet

Precipitation: About 14 inches

Air temperature: About 44 degrees

Frost-free season: About 90 days

Surface rock fragments: 40 percent gravel

Surface layer texture: Very gravelly loam

Drainage class: Well drained

Dominant parent material: Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Dominant Present Vegetation

Ashone Idaho fescue, Thurber needlegrass, bluebunch wheatgrass, low sagebrush

Ashdos Idaho fescue, Thurber needlegrass, low sagebrush

Ashtre Idaho fescue, Thurber needlegrass, mountain big sagebrush

Inclusion 1 Idaho fescue bluebunch wheatgrass low sagebrush western juniper
 Inclusion 2 Thurber needlegrass big sagebrush bluebunch wheatgrass
 Inclusion 3 Idaho fescue basin big sagebrush
 Inclusion 4 Thurber needlegrass basin wildrye big sagebrush

Ecological Site

Ashdosh 023XY078NV
 Ashdosh 023XY079NV
 Ashdre 023XY094NV
 Inclusion 1 023XY096NV
 Inclusion 2 023XY020NV
 Inclusion 3 023XY071NV
 Inclusion 4 023XY082NV

1253--Ashdosh-Ashdre-Hackwood association

Composition

Major Components

Ashdosh very gravelly fine sandy loam, 30 to 50 percent slopes--35 percent
 Ashdre very gravelly loam, 30 to 50 percent slopes--35 percent
 Hackwood gravelly loam, 30 to 50 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Tussock stony loam, 30 to 50 percent slopes--7 percent
 Inclusion 2 Boltz very gravelly sandy loam, 15 to 50 percent slopes--4 percent
 Inclusion 3 Aquandic Endoaquolls, Ashy frigid loam, 4 to 15 percent slopes--3 percent
 Inclusion 4 Cumulic Cryaquols, loamy skeletal mixed very gravelly loam, 4 to 15 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus and adjacent bolsons
 Ashdosh--Landform Ash flows, geomorphic position backslope shape of slope convex
 Ashdre--Landform Ash flows, geomorphic position backslope shape of slope concave
 Hackwood--Landform Plateaus, geomorphic position toeslope
 Inclusion 1--Landform Plateaus, geomorphic position backslope position on slope upper
 Inclusion 2--Landform Plateaus, geomorphic position shoulder
 Inclusion 3--Landform Alluvial fans, geomorphic position toeslope shape of slope concave
 Inclusion 4 Landform Drainageways

Major Component Description

Ashdosh Series

Elevation 6,000 to 6,900 feet
 Precipitation About 14 inches
 Air temperature About 44 degrees
 Frost-free season About 80 days
 Surface rock fragments 40 percent gravel
 Surface layer texture Very gravelly fine sandy loam
 Drainage class Well drained

Dominant parent material: Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Ashdre Series

Elevation 6,000 to 6,900 feet
 Precipitation About 14 inches
 Air temperature About 44 degrees
 Frost-free season About 90 days
 Surface rock fragments 40 percent gravel
 Surface layer texture Very gravelly loam
 Drainage class Well drained
Dominant parent material: Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Hackwood Series

Elevation 6,000 to 6,900 feet
 Precipitation About 16 inches
 Air temperature About 41 degrees
 Frost-free season About 50 days
 Surface rock fragments 5 percent cobbles 20 percent gravel
 Surface layer texture Gravelly loam
 Drainage class Well drained
Dominant parent material: Colluvium derived from volcanic rocks

Dominant Present Vegetation

Ashdosh Idaho fescue, Thurber needlegrass low sagebrush
 Ashdre Idaho fescue Thurber needlegrass mountain big sagebrush
 Hackwood Bluegrass quaking aspen snowberry
 Inclusion 1 Idaho fescue mountain big sagebrush
 Inclusion 2 Idaho fescue antelope bitterbrush mountain big sagebrush
 Inclusion 3 Nevada bluegrass rush
 Inclusion 4 Quaking aspen

Ecological Site

Ashdosh 023XY079NV
 Ashdre 023XY094NV
 Hackwood 023XY028NV
 Inclusion 1 023XY054NV
 Inclusion 2 023XY066NV
 Inclusion 3 023XY013NV
 Inclusion 4 023XY029NV

1255--Newlands-Ninemile complex, 4 to 15 percent slopes

Composition

Major Components

Newlands stony loam, 4 to 15 percent slopes--60 percent
 Ninemile very cobbly loam, 4 to 15 percent slopes--25 percent

Contrasting Inclusions

Inclusion 1 Lithic Argixerolls, loamy skeletal mixed, frigid very gravelly loam, 2 to 15 percent slopes--5 percent
 Inclusion 2 Merbo very gravelly loam, 4 to 15 percent slopes--5 percent

Inclusion 3 Westbutte very gravelly loam, 4 to 30 percent slopes- 5 percent

Map Unit Setting

Landscape position Plateaus
 Newlands--Landform, Plateaus, geomorphic position summit, shape of slope concave, aspect north
 Ninemile--Landform, Plateaus, geomorphic position summit
 Inclusion 1--Landform, Plateaus, geomorphic position summit
 Inclusion 2--Landform, Plateaus, geomorphic position backslope, shape of slope concave
 Inclusion 3--Landform, Plateaus, geomorphic position backslope, aspect southwest

Major Component Description

Newlands Series

Elevation 6 200 to 6 400 feet
Precipitation About 14 inches
Air temperature About 44 degrees
Frost-free season About 60 days
Surface rock fragments 2 percent stones and boulders, 5 percent cobbles, 10 percent gravel
Surface layer texture Stony loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Ninemile Series

Elevation 6 200 to 6 400 feet
Precipitation About 14 inches
Air temperature About 44 degrees
Frost-free season About 75 days
Surface rock fragments 20 percent cobbles, 30 percent gravel
Surface layer texture Very cobbly loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Newlands Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 Ninemile Idaho fescue, bluebunch wheatgrass, low sagebrush
 Inclusion 1 Idaho fescue, low sagebrush
 Inclusion 2 Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 3 Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Ecological Site

Newlands 023XY007NV
 Ninemile 023XY017NV
 Inclusion 1 023XY008NV
 Inclusion 2 023XY007NV
 Inclusion 3 023XY007NV

1256--Newlands-Menbo association

Composition

Major Components

Newlands stony loam, 4 to 30 percent slopes--50 percent
 Menbo very gravelly loam, 4 to 30 percent slopes- 35 percent

Contrasting Inclusions

Inclusion 1 Hartig very gravelly loam, 4 to 30 percent slopes- 8 percent
 Inclusion 2 Hart Camp stony loam, 4 to 30 percent slopes- 6 percent
 Inclusion 3 Badgercamp bouldery loam, 15 to 30 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus
 Newlands--Landform, Plateaus, geomorphic position backslope, shape of slope concave, aspect north
 Menbo--Landform, Plateaus, geomorphic position shoulder
 Inclusion 1--Landform, Plateaus, geomorphic position shoulder, aspect east
 Inclusion 2--Landform, Plateaus, geomorphic position backslope, aspect east
 Inclusion 3--Landform, Plateaus, geomorphic position summit

Major Component Description

Newlands Series

Elevation 6 000 to 6 200 feet
Precipitation About 14 inches
Air temperature About 44 degrees
Frost-free season About 60 days
Surface rock fragments 2 percent stones and boulders, 5 percent cobbles, 15 percent gravel
Surface layer texture Stony loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Menbo Series

Elevation 6 000 to 6 200 feet
Precipitation About 14 inches
Air temperature About 44 degrees
Frost-free season About 60 days
Surface rock fragments 3 percent cobbles, 45 percent gravel
Surface layer texture Very gravelly loam
Drainage class Well drained
Dominant parent material Residuum and colluvium derived from tuffaceous rocks

Dominant Present Vegetation

Newlands Idaho fescue, mountain big sagebrush, needlegrass, snowberry
 Menbo Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Inclusion 1 Bluebunch wheatgrass, mountain big sagebrush
 Inclusion 2 Antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 3 Idaho fescue, mountain big sagebrush, curlleaf mountain mahogany, needlegrass

Ecological Site

Newlands 023XY065NV
 Menbo 023XY007NV
 Inclusion 1 023XY016NV
 Inclusion 2 023XY016NV
 Inclusion 3 023XY026NV

1257--Newlands-Hapgood association

Composition

Major Components

Newlands stony loam, 8 to 30 percent slopes--50 percent
 Hapgood very gravelly loam, 8 to 30 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Menbo stony loam, 4 to 15 percent slopes--8 percent
 Inclusion 2 Hackwood gravelly loam, 15 to 30 percent slopes--7 percent

Map Unit Setting

Landscape position: Plateaus
 Newlands--*Landform:* Plateaus, geomorphic position backslope, shape of slope concave
 Hapgood--*Landform:* Plateaus, geomorphic position shoulder
 Inclusion 1--*Landform:* Plateaus, geomorphic position toeslope
 Inclusion 2--*Landform:* Plateaus, geomorphic position backslope, position on slope upper aspect north

Major Component Description

Newlands Series

Elevation: 6,200 to 6,900 feet
Precipitation: About 14 inches
Air temperature: About 44 degrees
Frost-free season: About 60 days
Surface rock fragments: 2 percent stones and boulders, 5 percent cobbles, 15 percent gravel
Surface layer texture: Stony loam
Drainage class: Well drained
Dominant parent material: Residuum derived from volcanic rocks

Hapgood Series

Elevation: 6,200 to 6,900 feet
Precipitation: About 14 inches
Air temperature: About 42 degrees
Frost-free season: About 60 days
Surface rock fragments: 2 percent cobbles, 40 percent gravel
Surface layer texture: Very gravelly loam
Drainage class: Well drained

Dominant parent material: Residuum and colluvium derived from volcanic rocks

Dominant Present Vegetation

Newlands Idaho fescue, mountain big sagebrush, needlegrass, snowberry
 Hapgood Idaho fescue, mountain big sagebrush, needlegrass, snowberry
 Inclusion 1 Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 2 Quaking aspen

Ecological Site

Newlands 023XY065NV
 Hapgood 023XY065NV
 Inclusion 1 023XY007NV
 Inclusion 2 023XY026NV

1258--Newlands-Badgercamp-Hackwood association

Composition

Major Components

Newlands stony loam, 4 to 30 percent slopes--50 percent
 Badgercamp bouldery loam, 4 to 30 percent slopes--20 percent
 Hackwood gravelly loam, 15 to 30 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Ninemile very cobbly loam, 4 to 30 percent slopes--8 percent
 Inclusion 2 Westbutte stony loam, 15 to 30 percent slopes--5 percent
 Inclusion 3 Rock outcrop--2 percent

Map Unit Setting

Landscape position: Plateaus
 Newlands--*Landform:* Plateaus, geomorphic position backslope, shape of slope concave, aspect north
 Badgercamp--*Landform:* Plateaus, geomorphic position shoulder
 Hackwood--*Landform:* Plateaus, geomorphic position backslope
 Inclusion 1--*Landform:* Plateaus, geomorphic position summit
 Inclusion 2--*Landform:* Plateaus, geomorphic position backslope, aspect west
 Inclusion 3--*Landform:* Plateaus

Major Component Description

Newlands Series

Elevation: 6,000 to 6,500 feet
Precipitation: About 14 inches
Air temperature: About 44 degrees
Frost-free season: About 60 days
Surface layer texture: Stony loam
Surface rock fragments: 2 percent stones and boulders, 5 percent cobbles, 15 percent gravel
Drainage class: Well drained
Dominant parent material: Residuum derived from volcanic rocks

Badgercamp Series*Elevation* 6 000 to 6 500 feet*Precipitation* About 16 inches*Air temperature* About 40 degrees*Frost free season* About 50 days*Surface rock fragments* 2 percent stones and boulders, 2 percent cobbles 20 percent gravel*Surface layer texture* Boundary loam*Drainage class* We drained*Dominant parent material* Residuum derived from tuffaceous rocks**Hackwood Series***Elevation* 6 000 to 6 500 feet*Precipitation* About 16 inches*Air temperature* About 41 degrees*Frost-free season* About 50 days*Surface rock fragments* 5 percent cobbles, 20 percent gravel*Surface layer texture* Gravelly loam*Drainage class* We drained*Dominant parent material* Colluvium derived from volcanic rocks**Dominant Present Vegetation**Newlands Idaho fescue mountain big sagebrush
needlegrass, snowberryBadgercamp Idaho fescue big sagebrush curleaf
mountainmahogany needlegrass

Hackwood Bluegrass, quaking aspen, snowberry

Inclusion 1 Idaho fescue bluebunch wheatgrass, low
sagebrushInclusion 2 Idaho fescue bluebunch wheatgrass,
mountain big sagebrush

Inclusion 3 None

Ecological Site

Newlands 023XY065NV

Badgercamp 023XY026NV

Hackwood 023XY028NV

Inclusion 1 023XY017NV

Inclusion 2 023XY007NV

Inclusion 3 none

1265--Fitzwater-Westbutte association**Composition****Major Components**Fitzwater extremely stony loam, 30 to 50 percent slopes--
45 percent

Westbutte stony loam, 30 to 50 percent slopes--40 percent

Contrasting InclusionsInclusion 1 Buckskin very stony loam, 30 to 50 percent
slopes--7 percentInclusion 2 Hapgood very stony loam, 30 to 50 percent
slopes--5 percentInclusion 3 Hackwood very stony loam, 30 to 50 percent
slopes--2 percentInclusion 4 Cumuk Haploxerolls, loamy-skeletal, mixed
mesic gravelly loam 0 to 4 percent slopes--1 percent**Map Unit Setting***Landscape position* PlateausFitzwater--Landform Plateaus, geomorphic position
backslope, aspect southWestbutte--Landform Plateaus, geomorphic position
backslope aspect northInclusion 1--Landform Plateaus, geomorphic position
backslope position on slope lower aspect southInclusion 2--Landform Plateaus, geomorphic position
backslope position on slope upper shape of slope
convex aspect northInclusion 3--Landform Plateaus, geomorphic position
backslope position on slope upper shape of slope
concave aspect north

Inclusion 4--Landform Stream terraces

Major Component Description**Fitzwater Series***Elevation* 5,000 to 6 200 feet*Precipitation* About 12 inches*Air temperature* About 45 degrees*Frost-free season* About 90 days*Surface rock fragments* 15 percent stones and boulders
20 percent cobbles 20 percent gravel*Surface layer texture* Extremely stony loam*Drainage class* Well drained*Dominant parent material* Colluvium derived from volcanic
rocks**Westbutte Series***Elevation* 5 000 to 6 200 feet*Precipitation* About 12 inches*Air temperature* About 45 degrees*Frost-free season* About 90 days*Surface rock fragments* 5 percent stones and boulders, 10
percent cobbles 20 percent gravel*Surface layer texture* Stony loam*Drainage class* Well drained*Dominant parent material* Colluvium derived from volcanic
rocks**Dominant Present Vegetation**

Fitzwater Bluebunch wheatgrass mountain big sagebrush

Westbutte Idaho fescue antelope billerbrush bluebunch
wheatgrass mountain big sagebrush

Inclusion 1 Big sagebrush bluebunch wheatgrass

Inclusion 2 Mountain big sagebrush serviceberry
snowberry

Inclusion 3 Quaking aspen

Inclusion 4 Basin wildrye mountain big sagebrush

Ecological Site

Fitzwater 023XY016NV

Westbutte 023XY007NV

Inclusion 1 023XY039NV

Inclusion 2 023XY065NV

Inclusion 3 023XY028NV

Inclusion 4 023XY056NV

1270--Hartig gravelly loam, 8 to 30 percent slopes

Composition

Major Components

Hartig gravelly loam, 8 to 30 percent slopes 85 percent

Contrasting Inclusions

Inclusion 1 Hartig gravelly loam, 30 to 50 percent slopes--5 percent

Inclusion 2 Menbo very gravelly loam, 8 to 30 percent slopes--4 percent

Inclusion 3 Ninemile very cobbly loam, 4 to 30 percent slopes--3 percent

Inclusion 4 Hart Camp stony loam, 8 to 30 percent slopes--3 percent

Map Unit Setting

Landscape position Plateaus and mountains

Hartig--Landform Plateaus geomorphic position
backslope aspect south

Inclusion 1--Landform Mountains geomorphic position
backslope position on slope upper

Inclusion 2--Landform Plateaus geomorphic position
backslope aspect north

Inclusion 3--Landform Plateaus geomorphic position
summit position on slope upper shape of slope
convex

Inclusion 4--Landform Pediments position on slope lower

Major Component Description

Hartig Series

Elevation 5 800 to 6 500 feet

Precipitation About 14 inches

Air temperature About 42 degrees

Frost-free season About 50 days

Surface rock fragments 15 percent gravel

Surface layer texture Gravelly loam

Drainage class Well drained

Dominant parent material Colluvium derived from volcanic rocks

Dominant Present Vegetation

Hartig Idaho fescue bluebunch wheatgrass, mountain big sagebrush

Inclusion 1 Idaho fescue bluebunch wheatgrass,
mountain big sagebrush

Inclusion 2 Idaho fescue bluebunch wheatgrass,
mountain big sagebrush

Inclusion 3 Idaho fescue bluebunch wheatgrass, low
sagebrush

Inclusion 4 Antelope bitterbrush bluebunch wheatgrass,
mountain big sagebrush

Ecological Site

Hartig 023XY016NV

Inclusion 1 023XY016NV

Inclusion 2 023XY007NV

Inclusion 3 023XY017NV

Inclusion 4 023XY015NV

1271--Hartig-Newlands association

Composition

Major Components

Hartig very stony sandy loam, 30 to 50 percent slopes 70 percent

Newlands stony loam, 30 to 50 percent slopes 16 percent

Contrasting Inclusions

Inclusion 1 Hackwood loam, 15 to 30 percent slopes--6 percent

Inclusion 2 Badgercamp very stony loam, 8 to 30 percent slopes--5 percent

Inclusion 3 Hackwood very gravelly loam, cold, 30 to 50 percent slopes--4 percent

Map Unit Setting

Landscape position Plateaus

Hartig--Landform Plateaus geomorphic position
backslope

Newlands--Landform Plateaus geomorphic position
backslope aspect north

Inclusion 1--Landform Plateaus geomorphic position
backslope position on slope upper shape of slope
concave aspect north

Inclusion 2--Landform Plateaus geomorphic position
backslope position on slope upper shape of slope
concave aspect north

Inclusion 3--Landform Plateaus geomorphic position
backslope position on slope upper

Major Component Description

Hartig Series

Elevation 5 800 to 6 300 feet

Precipitation About 14 inches

Air temperature About 42 degrees

Frost-free season About 50 days

Surface rock fragments 10 percent stones and boulders,
10 percent cobbles, 25 percent gravel

Surface layer texture Very stony sandy loam

Drainage class Well drained

Dominant parent material Colluvium derived from volcanic rocks

Newlands Series

Elevation 5 800 to 6 300 feet

Precipitation About 14 inches

Air temperature About 44 degrees

Frost-free season About 60 days

Surface rock fragments 2 percent stones and boulders, 5
percent cobbles, 15 percent gravel

Surface layer texture Stony loam

Drainage class Well drained

Dominant parent material Colluvium derived from volcanic rocks

Dominant Present Vegetation

Hartig Idaho fescue bluebunch wheatgrass, mountain big
sagebrush

Newlands Idaho fescue bluebunch wheatgrass,
bluegrass, mountain big sagebrush

Inclusion 1 Quaking aspen
 Inclusion 2 Idaho fescue, curleaf mountainmahogany
 mountain big sagebrush
 Inclusion 3 Mountain brome quaking aspen snowberry

Ecological Site

Hartig 023XY016NV
 Newlands 023XY054NV
 Inclusion 1 023XY028NV
 Inclusion 2 023XY026NV
 Inclusion 3 023XY027NV

1272--Hartig-Rock outcrop association

Composition

Major Components
 Hartig very gravelly sandy loam, 30 to 50 percent slopes--
 70 percent
 Rock outcrop--15 percent
Contrasting Inclusions
 Inclusion 1 Hartig very gravelly sandy loam, 50 to 90
 percent slopes--6 percent
 Inclusion 2 Ashdos very gravelly sandy loam, 30 to 50
 percent slopes--5 percent
 Inclusion 3 Reywat very stony loam, 15 to 50 percent
 slopes--3 percent
 Inclusion 4 Corra very stony loam, 30 to 50 percent
 slopes--1 percent

Map Unit Setting

Landscape position: Plateaus and mountains
Hartig--Landform: Mountains, geomorphic position
 footslope aspect east
Rock outcrop--Landform: Plateaus
Inclusion 1--Landform: Mountains, geomorphic position
 backslope aspect east
Inclusion 2--Landform: Ash flows, geomorphic position
 backslope aspect north
Inclusion 3--Landform: Plateaus, geomorphic position
 backslope aspect south
Inclusion 4--Landform: Plateaus, geomorphic position
 backslope aspect south

Major Component Description

Hartig Series
Elevation: 5 700 to 6 000 feet
Precipitation: About 14 inches
Air temperature: About 42 degrees
Frost-free season: About 50 days
Surface rock fragments: 5 percent cobbles, 40 percent
 gravel
Surface layer texture: Very gravelly sandy loam
Drainage class: Well drained
Dominant parent material: Colluvium derived from volcanic
 rocks

Rock outcrop Miscellaneous Area

Elevation: 5 700 to 6 000 feet
Drainage class: Excessively drained

Dominant Present Vegetation

Hartig Idaho fescue, bluebunch wheatgrass, mountain big
 sagebrush
 Inclusion 1 Bluebunch wheatgrass
 Inclusion 2 Idaho fescue Thurber need egrass low
 sagebrush
 Inclusion 3 Big sagebrush bluebunch wheatgrass
 Inclusion 4 Thurber neediegrass Wyoming big sagebrush

Ecological Site

Hartig 023XY016NV
 Rock outcrop none
 Inclusion 1 023XY016NV
 Inclusion 2 023XY079NV
 Inclusion 3 023XY039NV
 Inclusion 4 023XY006NV

1273--Hartig-Hapgood association

Composition

Major Components
 Hartig very gravelly sandy loam, 50 to 70 percent slopes--
 60 percent
 Hapgood very gravelly loam, 50 to 70 percent slopes--25
 percent
Contrasting Inclusions
 Inclusion 1 Westbutte very gravelly loam, 30 to 70 percent
 slopes--9 percent
 Inclusion 2 Badgercamp very gravelly loam, 30 to 70
 percent slopes--4 percent
 Inclusion 3 Hapgood very gravelly loam, 30 to 50 percent
 slopes--2 percent

Map Unit Setting

Landscape position: Plateaus
Hartig--Landform: Plateaus, geomorphic position
 backslope aspect east
Hapgood--Landform: Plateaus, geomorphic position
 backslope aspect north
Inclusion 1--Landform: Plateaus, geomorphic position
 backslope aspect southeast
Inclusion 2--Landform: Plateaus, geomorphic position
 shoulder
Inclusion 3--Landform: Plateaus, geomorphic position
 backslope shape of slope concave

Major Component Description

Hartig Series
Elevation: 6 000 to 6 500 feet
Precipitation: About 14 inches
Air temperature: About 42 degrees
Frost-free season: About 50 days
Surface rock fragments: 5 percent cobbles, 40 percent
 gravel
Surface layer texture: Very gravelly sandy loam
Drainage class: Well drained
Dominant parent material: Colluvium derived from volcanic
 rocks

Hapgood Series

Elevation: 6 000 to 6,500 feet

Precipitation About 14 inches
Air temperature About 42 degrees
Frost-free season About 60 days
Surface rock fragments 2 percent cobbles 40 percent gravel
Surface layer texture Very gravelly loam
Drainage class Well drained
Dominant parent material Residuum and colluvium derived from volcanic rocks

Dominant Present Vegetation

Hartig Idaho fescue, bluebunch wheatgrass, mountain big sagebrush
 Hapgood Idaho fescue, mountain big sagebrush, needlegrass, snowberry
 Inclusion 1 Idaho fescue, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 2 Bluebunch wheatgrass, curlyleaf mountainmahogany, mountain big sagebrush
 Inclusion 3 Idaho fescue, mountain big sagebrush, needlegrass, snowberry

Ecological Site

Hartig 023XY016NV
 Hapgood 023XY065NV
 Inclusion 1 023XY007NV
 Inclusion 2 023XY026NV
 Inclusion 3 023XY065NV

1275--Hart Camp stony loam, 8 to 30 percent slopes

Composition

Major Components
 Hart Camp stony loam 8 to 30 percent slopes--85 percent
Contrasting Inclusions
 Inclusion 1 Hartig gravelly loam, 8 to 30 percent slopes--8 percent
 Inclusion 2 Madeline stony loam, 4 to 15 percent slopes--4 percent
 Inclusion 3 Reywat very stony loam, 4 to 15 percent slopes--3 percent

Map Unit Setting

Landscape position Plateaus
 Hart Camp--Landform Plateaus, geomorphic position backslope, aspect south
 Inclusion 1--Landform Plateaus, geomorphic position backslope, position on slope upper
 Inclusion 2--Landform Plateaus, geomorphic position backslope, shape of slope concave
 Inclusion 3--Landform Plateaus, geomorphic position summit, aspect southwest

Major Component Description

Hart Camp Series
Elevation 5 800 to 6 500 feet
Precipitation About 11 inches
Air temperature About 43 degrees
Frost-free season About 70 days

Surface rock fragments 2 percent stones and boulders 5 percent cobbles, 15 percent gravel
Surface layer texture Stony loam
Drainage class Well drained
Dominant parent material Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Hart Camp Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 1 Bluebunch wheatgrass, mountain big sagebrush
 Inclusion 2 Antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 3 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Ecological Site

Hart Camp 023XY015NV
 Inclusion 1 023XY016NV
 Inclusion 2 023XY015NV
 Inclusion 3 023XY020NV

1276--Hart Camp-Reywat-Westbutte association

Composition

Major Components
 Hart Camp stony loam, 30 to 50 percent slopes--40 percent
 Reywat stony loam, 30 to 50 percent slopes--30 percent
 Westbutte stony loam, 30 to 50 percent slopes--15 percent
Contrasting Inclusions
 Inclusion 1 Hartig stony loam, 30 to 50 percent slopes--8 percent
 Inclusion 2 Newlands stony loam, 30 to 50 percent slopes--4 percent
 Inclusion 3 Fiddier very stony loam, 15 to 50 percent slopes--3 percent

Map Unit Setting

Landscape position Plateaus
 Hart Camp--Landform Plateaus, geomorphic position backslope, aspect east
 Reywat--Landform Plateaus, geomorphic position backslope, aspect south
 Westbutte--Landform Plateaus, geomorphic position toeslope, aspect north
 Inclusion 1--Landform Plateaus, geomorphic position backslope, position on slope upper, aspect east
 Inclusion 2--Landform Plateaus, geomorphic position backslope, shape of slope concave, aspect north
 Inclusion 3--Landform Plateaus, geomorphic position summit, position on slope upper, aspect south

Major Component Description

Hart Camp Series
Elevation 5 500 to 6 200 feet
Precipitation About 11 inches
Air temperature About 43 degrees
Frost-free season About 70 days

Surface rock fragments. 2 percent stones and boulders. 5 percent cobbles. 15 percent gravel
Surface layer texture. Stony loam
Drainage class. Well drained
Dominant parent material. Residuum derived from tuffaceous rocks

Reywat Series

Elevation. 5 500 to 6 200 feet
Precipitation. About 12 inches
Air temperature. About 45 degrees
Frost-free season. About 80 days
Surface rock fragments. 2 percent stones and boulders. 10 percent cobbles. 15 percent gravel
Surface layer texture. Stony loam
Drainage class. Well drained
Dominant parent material. Residuum derived from volcanic rocks

Westbutte Series

Elevation. 5 500 to 6 200 feet
Precipitation. About 12 inches
Air temperature. About 45 degrees
Frost-free season. About 90 days
Surface rock fragments. 5 percent stones and boulders. 10 percent cobbles. 20 percent gravel
Surface layer texture. Stony loam
Drainage class. Well drained
Dominant parent material. Colluvium derived from volcanic rocks

Dominant Present Vegetation

Hart Camp. Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 Reywat. Thurber needlegrass, big sagebrush, bluebunch wheatgrass
 Westbutte. Idaho fescue, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 1. Idaho fescue, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 2. Idaho fescue, mountain big sagebrush
 Inclusion 3. Big sagebrush, western juniper

Ecological Site

Hart Camp. 023XY015NV
 Reywat. 023XY039NV
 Westbutte. 023XY007NV
 Inclusion 1. 023XY016NV
 Inclusion 2. 023XY054NV
 Inclusion 3. 023XY024NV

1277--Hart Camp-Ninemile association

Composition

Major Components

Hart Camp stony loam, 4 to 30 percent slopes--60 percent
 Ninemile very gravelly loam, 4 to 30 percent slopes--25 percent

Contrasting Inclusions

Inclusion 1. Tussock stony loam. 30 to 50 percent slopes. 6 percent

Inclusion 2. Hartig very stony loam. 30 to 50 percent slopes. 5 percent
 Inclusion 3. Lithic Argixerous loamy skeletal mixed, frigid very gravelly loam. 4 to 15 percent slopes. 2 percent
 Inclusion 4. Vitrandic Cryoborolls. Ashy gravelly sandy loam, 4 to 15 percent slopes--2 percent

Map Unit Setting

Landscape position. Plateaus
 Hart Camp--Landform. Plateaus, geomorphic position summit, shape of slope concave
 Ninemile--Landform. Plateaus, geomorphic position summit, shape of slope convex
 Inclusion 1--Landform. Plateaus, geomorphic position backslope, aspect north
 Inclusion 2--Landform. Plateaus, geomorphic position backslope, aspect south
 Inclusion 3--Landform. Plateaus, geomorphic position summit
 Inclusion 4--Landform. Plateaus, geomorphic position toeslope, shape of slope concave, aspect north

Major Component Description

Hart Camp Series

Elevation. 6 500 to 6 900 feet
Precipitation. About 11 inches
Air temperature. About 43 degrees
Frost-free season. About 70 days
Surface rock fragments. 2 percent stones and boulders. 5 percent cobbles. 15 percent gravel
Surface layer texture. Stony loam
Drainage class. Well drained
Dominant parent material. Residuum derived from tuffaceous rocks

Ninemile Series

Elevation. 6 500 to 6 900 feet
Precipitation. About 14 inches
Air temperature. About 44 degrees
Frost-free season. About 75 days
Surface rock fragments. 40 percent gravel
Surface layer texture. Very gravelly loam
Drainage class. Well drained
Dominant parent material. Residuum derived from volcanic rocks

Dominant Present Vegetation

Hart Camp. Antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 Ninemile. Idaho fescue, bluebunch wheatgrass, low sagebrush
 Inclusion 1. Idaho fescue, mountain big sagebrush
 Inclusion 2. Idaho fescue, Thurber needlegrass, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 3. Idaho fescue, bluegrass, low sagebrush
 Inclusion 4. Idaho fescue, Nevada bluegrass, mountain big sagebrush

Ecological Site

Hart Camp. 023XY015NV
 Ninemile. 023XY017NV
 Inclusion 1. 023XY054NV
 Inclusion 2. 023XY016NV

Inclusion 3 023XY008NV

Inclusion 4 023XY084NV

1278--Boltz-Hart Camp association

Composition

Major Components

Boltz gravelly sandy loam 4 to 30 percent slopes--60 percent

Hart Camp stony loam 4 to 30 percent slopes--25 percent

Contrasting Inclusions

Inclusion 1 Ashire gravelly sandy loam 8 to 15 percent slopes--5 percent

Inclusion 2 Menbo very gravelly loam 8 to 30 percent slopes--5 percent

Inclusion 3 Tusune stony loam 30 to 50 percent slopes--3 percent

Inclusion 4 Vrandic Cryoborolls Ashy gravelly sandy loam 2 to 8 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus

Boltz--Landform Plateaus geomorphic position shoulder aspect north

Hart Camp--Landform Plateaus geomorphic position backslope

Inclusion 1--Landform Ash flows geomorphic position shoulder aspect north

Inclusion 2--Landform Plateaus geomorphic position backslope

Inclusion 3--Landform Plateaus geomorphic position backslope aspect north

Inclusion 4--Landform Plateaus geomorphic position toeslope shape of slope concave

Major Component Description

Boltz Series

Elevation 6 200 to 6 600 feet

Precipitation About 14 inches

Air temperature About 44 degrees

Frost-free season About 90 days

Surface rock fragments 15 percent gravel

Surface layer texture Gravelly sandy loam

Drainage class Well drained

Dominant parent material Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Hart Camp Series

Elevation 6 200 to 6 600 feet

Precipitation About 11 inches

Air temperature About 43 degrees

Frost-free season About 70 days

Surface rock fragments 2 percent stones and boulders 5 percent cobbles 15 percent gravel

Surface layer texture Stony loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Boltz Idaho fescue antelope bitterbrush mountain big sagebrush needlegrass

Hart Camp Idaho fescue antelope bitterbrush bluebunch wheatgrass mountain big sagebrush

Inclusion 1 Idaho fescue antelope bitterbrush mountain big sagebrush needlegrass

Inclusion 2 Idaho fescue antelope bitterbrush bluebunch wheatgrass mountain big sagebrush

Inclusion 3 Idaho fescue mountain big sagebrush

Inclusion 4 Idaho fescue bluegrass mountain big sagebrush needlegrass

Ecological Site

Boltz 023XY066NV

Hart Camp 023XY015NV

Inclusion 1 023XY094NV

Inclusion 2 023XY007NV

Inclusion 3 023XY054NV

Inclusion 4 023XY084NV

1279--Hart Camp-Nutzan-Westbutte association

Composition

Major Components

Hart Camp stony loam 4 to 30 percent slopes--40 percent

Nutzan gravelly sandy loam 4 to 30 percent slopes--30 percent

Westbutte very gravelly loam 4 to 30 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Lithic Argixerols loamy-skeletal mixed frigid extremely gravelly loam 4 to 15 percent slopes--5 percent

Inclusion 2 Ashdos very gravelly fine sandy loam 4 to 30 percent slopes--4 percent

Inclusion 3 Ninemire very cobbly loam 4 to 15 percent slopes--3 percent

Inclusion 4 Tusune stony loam 30 to 50 percent slopes--3 percent

Map Unit Setting

Landscape position Plateaus

Hart Camp--Landform Plateaus geomorphic position summit

Nutzan--Landform Plateaus geomorphic position shoulder

Westbutte--Landform Plateaus geomorphic position backslope

Inclusion 1 Landform Plateaus geomorphic position summit

Inclusion 2--Landform Plateaus geomorphic position shoulder

Inclusion 3--Landform Plateaus geomorphic position summit

Inclusion 4--Landform Ash flows geomorphic position backslope aspect north

Major Component Description**Hart Camp Series***Elevation* 6 200 to 6 800 feet*Precipitation* About 11 inches*Air temperature* About 43 degrees*Frost-free season* About 70 days*Surface rock fragments* 2 percent stones and boulders, 5 percent cobbles, 15 percent gravel*Surface layer texture* Stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from tuffaceous rocks**Nutzan Series***Elevation* 6 200 to 6 800 feet*Precipitation* About 14 inches*Air temperature* About 44 degrees*Frost-free season* About 70 days*Surface rock fragments* 30 percent gravel*Surface layer texture* Gravelly sandy loam*Drainage class* Well drained*Dominant parent material* Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks**Westbutte Series***Elevation* 6 200 to 6 800 feet*Precipitation* About 12 inches*Air temperature* About 45 degrees*Frost-free season* About 90 days*Surface rock fragments* 10 percent cobbles, 40 percent gravel*Surface layer texture* Very gravelly loam*Drainage class* Well drained*Dominant parent material* Colluvium derived from volcanic rocks**Dominant Present Vegetation***Hart Camp* Idaho fescue, Thurber needlegrass, antelope bitterbrush, bluebunch wheatgrass*Nutzan* Idaho fescue, antelope bitterbrush, mountain big sagebrush, needlegrass*Westbutte* Idaho fescue, bluebunch wheatgrass, mountain big sagebrush*Inclusion 1* Idaho fescue, bluegrass, low sagebrush*Inclusion 2* Idaho fescue, low sagebrush, needlegrass*Inclusion 3* Idaho fescue, bluebunch wheatgrass, low sagebrush*Inclusion 4* Idaho fescue, mountain big sagebrush**Ecological Site***Hart Camp* 023XY015NV*Nutzan* 023XY066NV*Westbutte* 023XY007NV*Inclusion 1* 023XY008NV*Inclusion 2* 023XY079NV*Inclusion 3* 023XY017NV*Inclusion 4* 023XY054NV**1285--Zymans-Indian Creek association****Composition****Major Components***Zymans* cobbly loam, 4 to 15 percent slopes--60 percent*Indian Creek* very cobbly loam, 4 to 15 percent slopes--25 percent**Contrasting Inclusions***Inclusion 1* Corral very cobbly loam, 4 to 8 percent slopes--8 percent*Inclusion 2* Reywal very cobbly loam, 15 to 30 percent slopes--7 percent**Map Unit Setting***Landscape position* Hills and intermontane basins*Zymans--Landform* Hills, geomorphic position, backslope*Indian Creek--Landform* Alluvia fans*Inclusion 1--Landform* Hills, geomorphic position, shoulder*Inclusion 2--Landform* Plateaus, geomorphic position, backslope**Major Component Description****Zymans Series***Elevation* 5 500 to 5 800 feet*Precipitation* About 11 inches*Air temperature* About 45 degrees*Frost-free season* About 100 days*Surface rock fragments* 10 percent cobbles, 5 percent gravel*Surface layer texture* Cobbly loam*Drainage class* Well drained*Dominant parent material* Residuum derived from tuffaceous rocks**Indian Creek Series***Elevation* 5 500 to 5 800 feet*Precipitation* About 11 inches*Air temperature* About 48 degrees*Frost-free season* About 90 days*Surface rock fragments* 20 percent cobbles, 15 percent gravel*Surface layer texture* Very cobbly loam*Drainage class* Well drained*Dominant parent material* Alluvium derived from mixed rocks**Dominant Present Vegetation***Zymans* Thurber needlegrass, big sagebrush, bluebunch wheatgrass*Indian Creek* Bluegrass, low sagebrush*Inclusion 1* Thurber needlegrass, Wyoming big sagebrush*Inclusion 2* Big sagebrush, bluebunch wheatgrass**Ecological Site***Zymans* 023XY020NV*Indian Creek* 023XY059NV*Inclusion 1* 023XY006NV*Inclusion 2* 023XY039NV

1286--Zymans-Cotant-Hart Camp association**Composition****Major Components**

Zymans cobbly loam, 8 to 30 percent slopes--50 percent

Cotant very gravelly loam, 8 to 30 percent slopes--20 percent

Hart Camp stony loam, 15 to 30 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Schamp very stony loam, 8 to 30 percent slopes--8 percent

Inclusion 2 Old Camp very stony loam, 15 to 30 percent slopes--7 percent

Map Unit Setting

Landscape position Plateaus and hills

Zymans--Landform: Hills, geomorphic position: backslope, aspect: south

Cotant--Landform: Hills, geomorphic position: summit

Hart Camp--Landform: Hills, geomorphic position: backslope, aspect: north

Inclusion 1--Landform: Hills, geomorphic position: toeslope, position on slope: lower

Inclusion 2--Landform: Plateaus, geomorphic position: backslope

Major Component Description**Zymans Series**

Elevation 5 600 to 6 000 feet

Precipitation About 11 inches

Air temperature About 45 degrees

Frost-free season About 100 days

Surface rock fragments 10 percent cobbles, 5 percent gravel

Surface layer texture Cobbly loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Cotant Series

Elevation 5 600 to 6 000 feet

Precipitation About 13 inches

Air temperature About 44 degrees

Frost-free season About 80 days

Surface rock fragments 5 percent cobbles, 40 percent gravel

Surface layer texture Very gravelly loam

Drainage class Well drained

Dominant parent material Residuum and colluvium derived from tuffaceous rocks

Hart Camp Series

Elevation 5 600 to 6 000 feet

Precipitation About 11 inches

Air temperature About 43 degrees

Frost-free season About 70 days

Surface rock fragments 2 percent stones and boulders, 5 percent cobbles, 15 percent gravel

Surface layer texture Stony loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Zymans, Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Cotant, Idaho fescue, bluebunch wheatgrass, low sagebrush

Hart Camp, Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush

Inclusion 1, Thurber needlegrass, Wyoming big sagebrush

Inclusion 2, Thurber needlegrass, Wyoming big sagebrush

Ecological Site

Zymans 023XY020NV

Cotant 023XY017NV

Hart Camp 023XY015NV

Inclusion 1 023XY006NV

Inclusion 2 023XY006NV

1290--Hapgood-Badgercamp-Hackwood association**Composition****Major Components**

Hapgood very gravelly loam, 15 to 30 percent slopes--40 percent

Badgercamp bouldery loam, 4 to 30 percent slopes--30 percent

Hackwood gravelly loam, 4 to 15 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Hackwood very gravelly sandy loam, cold, 15 to 50 percent slopes--8 percent

Inclusion 2 Newlands very gravelly loam, 4 to 15 percent slopes--6 percent

Inclusion 3 Easte very cobbly loam, 15 to 30 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus

Hapgood--Landform: Plateaus, geomorphic position: backslope

Badgercamp--Landform: Plateaus, geomorphic position: shoulder

Hackwood--Landform: Plateaus, geomorphic position: toeslope

Inclusion 1--Landform: Plateaus, geomorphic position: backslope, position on slope: upper

Inclusion 2--Landform: Plateaus, geomorphic position: toeslope, shape of slope: concave

Inclusion 3--Landform: Plateaus, geomorphic position: backslope, shape of slope: concave, aspect: north

Major Component Description**Hapgood Series**

Elevation 6 500 to 6 900 feet

Precipitation About 14 inches

Air temperature About 42 degrees

Frost-free season About 60 days

Surface rock fragments 2 percent cobbles, 40 percent gravel

Surface layer texture Very gravelly loam

Drainage class Well drained

Dominant parent material Residuum and colluvium derived from volcanic rocks

Badgercamp Series

Elevation 6 500 to 6 900 feet

Precipitation About 16 inches

Air temperature About 40 degrees

Frost-free season About 50 days

Surface rock fragments 2 percent stones and boulders, 2 percent cobbles, 10 percent gravel

Surface layer texture Bouldery loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Hackwood Series

Elevation 6 500 to 6 900 feet

Precipitation About 16 inches

Air temperature About 41 degrees

Frost-free season About 50 days

Surface rock fragments 5 percent cobbles, 20 percent gravel

Surface layer texture Gravelly loam

Drainage class Well drained

Dominant parent material Colluvium derived from volcanic rocks

Dominant Present Vegetation

Hapgood Mountain big sagebrush, needlegrass, snowberry

Badgercamp Idaho fescue, big sagebrush, curlleaf, mountain mahogany, needlegrass

Hackwood Bluegrass, quaking aspen, snowberry

Inclusion 1 Bitter cherry, quaking aspen, snowberry

Inclusion 2 Idaho fescue, antelope bitterbrush, bluebunch, wheatgrass, mountain big sagebrush

Inclusion 3 Snowbrush, ceanothus, white fir

Ecological Site

Hapgood 023XY065NV

Badgercamp 023XY026NV

Hackwood 023XY028NV

Inclusion 1 023XY027NV

Inclusion 2 023XY007NV

Inclusion 3 023XY092NV

1295--Devoy-Blizzard complex, 2 to 15 percent slopes

Composition

Major Components

Devoy cobbly loam, 2 to 15 percent slopes--50 percent

Blizzard very cobbly silty clay loam, 2 to 15 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Ninemile very stony loam, 2 to 15 percent slopes--8 percent

Inclusion 2 Tinpan very cobbly loam, 2 to 8 percent slopes--4 percent

Inclusion 3 Ashire stony loam, 2 to 15 percent slopes--2 percent

Inclusion 4 Tusune stony loam, 15 to 50 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus

Devoy--Landform Plateaus, geomorphic position backslope

Blizzard--Landform Plateaus, geomorphic position summit

Inclusion 1--Landform Plateaus, geomorphic position summit

Inclusion 2--Landform Plateaus, geomorphic position summit

Inclusion 3--Landform Plateaus, geomorphic position backslope, shape of slope concave

Inclusion 4--Landform Plateaus, geomorphic position backslope, aspect north

Major Component Description

Devoy Series

Elevation 6 500 to 6 800 feet

Precipitation About 13 inches

Air temperature About 44 degrees

Frost-free season About 50 days

Surface rock fragments 15 percent cobbles, 15 percent gravel

Surface layer texture Cobbly loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Blizzard Series

Elevation 6 500 to 6 800 feet

Precipitation About 13 inches

Air temperature About 44 degrees

Frost-free season About 50 days

Surface rock fragments 1 percent stones and boulders, 20 percent cobbles, 30 percent gravel

Surface layer texture Very cobbly silty clay loam

Drainage class Well drained

Dominant parent material Residuum and colluvium derived from volcanic rocks

Dominant Present Vegetation

Devoy Idaho fescue, Thurber needlegrass, bluebunch, wheatgrass, mountain big sagebrush

Blizzard Idaho fescue, bluebunch, wheatgrass, low sagebrush

Inclusion 1 Idaho fescue, bluebunch, wheatgrass, low sagebrush

Inclusion 2 Idaho fescue, bluebunch, wheatgrass, bluegrass, low sagebrush

Inclusion 3 Idaho fescue, mountain big sagebrush, needlegrass

Inclusion 4 Idaho fescue, mountain big sagebrush

Ecological Site

Devoy 023XY094NV

Blizzard 023XY017NV

Inclusion 1 023XY017NV

Inclusion 2 023XY017NV

Inclusion 3 023XY094NV

Inclusion 4 023XY054NV

1296--Blizzard very cobbly silty clay loam, 0 to 15 percent slopes

Composition

Major Components

Blizzard very cobbly silty clay loam, 0 to 15 percent slopes--90 percent

Contrasting Inclusions

Inclusion 1 Nhemie very cobbly loam, 2 to 15 percent slopes--5 percent

Inclusion 2 Hart Camp stony loam, 4 to 15 percent slopes--3 percent

Inclusion 3 Newlands stony loam, 15 to 30 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus

Blizzard--Landform Plateaus, geomorphic position summit

Inclusion 1--Landform Plateaus, geomorphic position summit

Inclusion 2--Landform Plateaus, geomorphic position backslope

Inclusion 3--Landform Plateaus, geomorphic position backslope aspect north

Major Component Description

Blizzard Series

Elevation 6 500 to 6 800 feet

Precipitation About 13 inches

Air temperature About 44 degrees

Frost-free season About 50 days

Surface rock fragments 1 percent stones and boulders 20 percent cobbles 30 percent gravel

Surface layer texture Very cobbly silty clay loam

Drainage class Well drained

Dominant parent material Residuum and colluvium derived from volcanic rocks

Dominant Present Vegetation

Blizzard Idaho fescue bluebunch wheatgrass, low sagebrush

Inclusion 1 Idaho fescue bluebunch wheatgrass, low sagebrush

Inclusion 2 Antelope bitterbrush bluebunch wheatgrass mountain big sagebrush

Inclusion 3 Idaho fescue mountain big sagebrush needlegrass

Ecological Site

Blizzard 023XY017NV

Inclusion 1 023XY017NV

Inclusion 2 023XY015NV

Inclusion 3 023XY065NV

1305--Utdike-Mazuma association

Composition

Major Components

Utdike silt loam, 0 to 2 percent slopes, rarely flooded--60 percent

Mazuma fine sandy loam, 0 to 4 percent slopes--25 percent

Contrasting Inclusions

Inclusion 1 Longdis silt loam, 0 to 2 percent slopes--7 percent

Inclusion 2 Skulwak silt loam, 0 to 2 percent slopes--6 percent

Inclusion 3 Mazuma sandy loam, moist, 0 to 4 percent slopes--2 percent

Map Unit Setting

Landscape position Bolsons

Utdike--Landform Lake terraces, shape of slope concave

Mazuma--Landform Lake terraces, shape of slope convex

Inclusion 1--Landform Lake terraces

Inclusion 2--Landform Basin floors

Inclusion 3--Landform Basin floors

Major Component Description

Utdike Series

Elevation 5 400 to 5 500 feet

Precipitation About 10 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface layer texture Silt loam

Drainage class Moderately well drained

Dominant parent material Alluvium derived from lacustrine sediments

Mazuma Series

Elevation 5 400 to 5 500 feet

Precipitation About 6 inches

Air temperature About 50 degrees

Frost-free season About 100 days

Surface layer texture Fine sandy loam

Drainage class Well drained

Dominant parent material Alluvium derived from lacustrine sediments

Dominant Present Vegetation

Utdike Basin wildrye, black greasewood, bottlebrush, squirreltail, inland saltgrass

Mazuma Bud sagebrush, shadscale

Inclusion 1 Big sagebrush, black greasewood

Inclusion 2 Nevada bluegrass, alkaligrass, inland saltgrass

Inclusion 3 Black greasewood, inland saltgrass

Ecological Site

Utdike 024XY008NV

Mazuma 024XY065NV

Inclusion 1 024XY022NV

Inclusion 2 023XY002NV

Inclusion 3 023XY010NV

1306--Urdike-Longdis association**Composition****Major Components**

Urdike silt loam, 0 to 2 percent slopes, rarely flooded, 70 percent

Longdis silty clay loam, 0 to 2 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Urdike silt loam, 0 to 2 percent slopes--6 percent

Inclusion 2 Playas, 0 to 1 percent slopes--4 percent

Map Unit Setting

Landscape position Bolsons

Urdike--Landform Lake terraces, shape of slope, concave

Longdis--Landform Lake terraces, shape of slope, convex

Inclusion 1--Landform Lake terraces

Inclusion 2--Landform Basin floors

Major Component Description**Urdike Series**

Elevation 5,500 to 5,550 feet

Precipitation About 10 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface layer texture Silt loam

Drainage class Moderately well drained

Dominant parent material Alluvium derived from lacustrine sediments

Longdis Series

Elevation 5,500 to 5,550 feet

Precipitation About 9 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface layer texture Silty clay loam

Drainage class Well drained

Dominant parent material Alluvium derived from lacustrine sediments

Dominant Present Vegetation

Urdike Basin wildrye, black greasewood, bottlebrush, squirreltail, inland saltgrass

Longdis Big sagebrush, black greasewood

Inclusion 1 Basin wildrye, black greasewood, inland saltgrass

Inclusion 2 None

Ecological Site

Urdike 024XY008NV

Longdis 024XY022NV

Inclusion 1 023XY010NV

Inclusion 2 None

1310--Longdis-Urdike association**Composition****Major Components**

Longdis silty clay loam, 0 to 2 percent slopes, 50 percent

Urdike silt loam, 0 to 2 percent slopes, 35 percent

Contrasting Inclusions

Inclusion 1 Dugway fine sandy loam, 0 to 2 percent slopes--7 percent

Inclusion 2 Skullwag silt loam, 0 to 2 percent slopes--4 percent

Inclusion 3 Paypoint gravelly fine sandy loam, 0 to 2 percent slopes--2 percent

Inclusion 4 Playas, 0 to 1 percent slopes--2 percent

Map Unit Setting

Landscape position Bolsons

Longdis--Landform Lake terraces, shape of slope, convex

Urdike--Landform Lake terraces, shape of slope, concave

Inclusion 1--Landform Lake terraces

Inclusion 2--Landform Basin floors

Inclusion 3--Landform Lagoons

Inclusion 4--Landform Playas

Major Component Description**Longdis Series**

Elevation 5,400 to 5,600 feet

Precipitation About 9 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface layer texture Silty clay loam

Drainage class Well drained

Dominant parent material Alluvium derived from lacustrine sediments

Urdike Series

Elevation 5,400 to 5,600 feet

Precipitation About 10 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface layer texture Silt loam

Drainage class Moderately well drained

Dominant parent material Alluvium derived from lacustrine sediments

Dominant Present Vegetation

Longdis Big sagebrush, black greasewood

Urdike Nevada bluegrass, basin wildrye, black greasewood, rubber rabbitbrush

Inclusion 1 Basin wildrye, big sagebrush, rubber rabbitbrush

Inclusion 2 Alkali grass, black greasewood, inland saltgrass

Inclusion 3 Wyoming big sagebrush, basin wildrye, rubber rabbitbrush

Inclusion 4 None

Ecological Site

Longdis 024XY022NV

Urdike 023XY010NV

Inclusion 1 023XY005NV

Inclusion 2 023XY002NV

Inclusion 3 023XY082NV

Inclusion 4 None

1311--Longdis-Macyflet-Aeric Epiaquents association

Composition

Major Components

Longdis silt loam, 0 to 2 percent slopes--40 percent
Macyflet silt loam, 0 to 2 percent slopes--30 percent
Aeric Epiaquents silt loam, 0 to 1 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Davey loamy fine sand, 0 to 4 percent slopes--4 percent
Inclusion 2 Surprise gravelly loamy sand, 2 to 8 percent slopes--4 percent
Inclusion 3 Indian Creek very cobbly loam, 2 to 8 percent slopes--2 percent

Map Unit Setting

Landscape position: Bolsons
Longdis--Landform: Alluvial flats
Macyflet--Landform: Lake plains
Aeric Epiaquents--Landform: Lake plains, position on slope: lower
Inclusion 1--Landform: Beach terraces
Inclusion 2--Landform: Alluvial flats
Inclusion 3--Landform: Alluvial fans

Major Component Description

Longdis Series

Elevation: 5 670 to 5 750 feet
Precipitation: About 9 inches
Air temperature: About 46 degrees
Frost-free season: About 90 days
Surface layer texture: Silt loam
Drainage class: Well drained
Dominant parent material: Alluvium derived from lacustrine sediments

Macyflet Series

Elevation: 5 670 to 5 750 feet
Precipitation: About 12 inches
Air temperature: About 43 degrees
Frost-free season: About 80 days
Surface layer texture: Silt loam
Drainage class: Moderately well drained
Dominant parent material: Alluvium derived from mixed rocks and lake sediments

Aeric Epiaquents Soils

Elevation: 5 650 to 5 720 feet
Precipitation: About 11 inches
Air temperature: About 46 degrees
Frost-free season: About 90 days
Surface layer texture: Silt loam
Drainage class: Very poorly drained
Dominant parent material: Alluvium derived from lacustrine sediments

Dominant Present Vegetation

Longdis: Nevada bluegrass, silver sagebrush
Macyflet: Cusick bluegrass, Douglas rabbitbrush, Thurber needgrass, alkali sagebrush, basin wildrye

Aeric Epiaquents: Mat muhly, other annual forbs, povertyweed
Inclusion 1: Basin big sagebrush, needleandthread
Inclusion 2: Thurber needgrass, big sagebrush, bluebunch wheatgrass
Inclusion 3: Thurber needgrass, bluegrass, low sagebrush

Ecological Site

Longdis: 023XY003NV
Macyflet: 023XY090NV
Aeric Epiaquents: 023XY023NV
Inclusion 1: 023XY051NV
Inclusion 2: 023XY020NV
Inclusion 3: 023XY059NV

1312--Longdis-Dugway association

Composition

Major Components

Longdis silty clay loam, 0 to 2 percent slopes--60 percent
Dugway fine sandy loam, 0 to 2 percent slopes--30 percent

Contrasting Inclusions

Inclusion 1: Uplike silt loam, 0 to 2 percent slopes, rarely flooded--6 percent
Inclusion 2: Langston gravelly sandy loam, 2 to 4 percent slopes--3 percent
Inclusion 3: Paypoint gravelly fine sandy loam, 0 to 2 percent slopes--1 percent

Map Unit Setting

Landscape position: Bolsons
Longdis--Landform: Lake terraces, shape of slope: convex
Dugway--Landform: Lake terraces
Inclusion 1--Landform: Lake terraces, shape of slope: concave
Inclusion 2--Landform: Longshore bars (relict)
Inclusion 3--Landform: Lagoons

Major Component Description

Longdis Series

Elevation: 5 500 to 5 600 feet
Precipitation: About 9 inches
Air temperature: About 46 degrees
Frost-free season: About 90 days
Surface layer texture: Silty clay loam
Drainage class: Well drained
Dominant parent material: Alluvium derived from lacustrine sediments

Dugway Series

Elevation: 5 500 to 5 600 feet
Precipitation: About 10 inches
Air temperature: About 45 degrees
Frost-free season: About 90 days
Surface layer texture: Fine sandy loam
Drainage class: Moderately well drained
Dominant parent material: Alluvium derived from lacustrine sediments

Dominant Present Vegetation

Longdis Big sagebrush, black greasewood
 Dugway Basin wildrye, big sagebrush, bottlebrush
 squirreltail, rubber rabbitbrush
 Inclusion 1 Nevada bluegrass, basin wildrye, black
 greasewood, rubber rabbitbrush
 Inclusion 2 Wyoming big sagebrush, bottlebrush
 squirreltail
 Inclusion 3 Basin wildrye, big sagebrush, rubber
 rabbitbrush

Ecological Site

Longdis 024XY022NV
 Dugway 023XY005NV
 Inclusion 1 023XY010NV
 Inclusion 2 023XY006NV
 Inclusion 3 023XY082NV

1313--Longdis silt loam, 0 to 2 percent slopes**Composition**

Major Components
 Longdis silt loam, 0 to 2 percent slopes--85 percent
Contrasting Inclusions
 Inclusion 1 Skullwax silt loam, 0 to 2 percent slopes--7
 percent
 Inclusion 2 Emagert loam, 0 to 2 percent slopes--5
 percent
 Inclusion 3 Aerio Ep aquents silt loam, 0 to 1 percent
 slopes--3 percent

Map Unit Setting

Landscape position Boisons
 Longdis--Landform Lake terraces
 Inclusion 1--Landform Basin floors
 Inclusion 2--Landform Stream terraces
 Inclusion 3--Landform Basin floors

Major Component Description

Longdis Series
Elevation 5 500 to 6 000 feet
Precipitation About 9 inches
Air temperature About 46 degrees
Frost-free season About 90 days
Surface layer texture Silt loam
Drainage class Well drained
Dominant parent material Alluvium derived from lacustrine
 sediments

Dominant Present Vegetation

Longdis Nevada bluegrass, silver sagebrush
 Inclusion 1 Nevada bluegrass, inland saltgrass
 Inclusion 2 Basin big sagebrush, basin wildrye
 Inclusion 3 Mat muhly, other annual forbs, povertyweed

Ecological Site

Longdis 023XY003NV
 Inclusion 1 023XY002NV
 Inclusion 2 023XY009NV

Inclusion 3 023XY023NV

1320--Dugway fine sandy loam, 0 to 2 percent slopes**Composition**

Major Components
 Dugway fine sandy loam, 0 to 2 percent slopes--85
 percent
Contrasting Inclusions
 Inclusion 1 Uplike silt loam, 0 to 2 percent slopes--7
 percent
 Inclusion 2 Longdis silty clay loam, 0 to 2 percent slopes--
 5 percent
 Inclusion 3 Zorravista fine sand, 0 to 4 percent slopes--2
 percent
 Inclusion 4 Wetvit loam, 0 to 2 percent slopes--1 percent

Map Unit Setting

Landscape position Boisons
 Dugway--Landform Lake terraces
 Inclusion 1--Landform Alluvial flats
 Inclusion 2--Landform Alluvial flats
 Inclusion 3--Landform Dunes
 Inclusion 4--Landform Depressions

Major Component Description

Dugway Series
Elevation 5 450 to 5 550 feet
Precipitation About 10 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface layer texture Fine sandy loam
Drainage class Moderately well drained
Dominant parent material Alluvium derived from lacustrine
 sediments

Dominant Present Vegetation

Dugway Big sagebrush, bottlebrush, squirreltail, rubber
 rabbitbrush
 Inclusion 1 Black greasewood
 Inclusion 2 Basin wildrye, big sagebrush, black
 greasewood
 Inclusion 3 Indian ricegrass, basin big sagebrush, rubber
 rabbitbrush
 Inclusion 4 Bluegrass, sedge

Ecological Site

Dugway 023XY005NV
 Inclusion 1 023XY010NV
 Inclusion 2 024XY022NV
 Inclusion 3 023XY011NV
 Inclusion 4 023XY089NV

1321--Dugway-Uplike association**Composition**

Major Components
 Dugway fine sandy loam, 0 to 2 percent slopes--60
 percent

Jpd ke silt loam. 0 to 2 percent slopes--25 percent

Contrasting Inclusions

Inclusion 1 Longdiss silt loam. 0 to 2 percent slopes--7 percent

Inclusion 2 Upland silt loam. 0 to 2 percent slopes--6 percent

Inclusion 3 Skunk Creek silt loam. 0 to 2 percent slopes--2 percent

Map Unit Setting

Landscape position Bolsons

Dugway--Landform Lake terraces

Jpd ke--Landform Lake terraces, shape of slope concave

Inclusion 1--Landform Lake terraces, shape of slope convex

Inclusion 2--Landform Lake terraces, shape of slope convex

Inclusion 3--Landform Basin floors

Major Component Description

Dugway Series

Elevation 5 400 to 5 500 feet

Precipitation About 10 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface layer texture Fine sandy loam

Drainage class Moderately well drained

Dominant parent material Alluvium derived from lacustrine sediments

Upland Series

Elevation 5 400 to 5 500 feet

Precipitation About 10 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface layer texture Silt loam

Drainage class Moderately well drained

Dominant parent material Alluvium derived from lacustrine sediments

Dominant Present Vegetation

Dugway Big sagebrush, bottlebrush squirreltail, rubber rabbitbrush

Upland Nevada bluegrass, basin wildrye, black greasewood, rubber rabbitbrush

Inclusion 1 Big sagebrush, black greasewood

Inclusion 2 Black greasewood, bottlebrush squirreltail, hard saltgrass

Inclusion 3 Nevada bluegrass, alkali grass, inland saltgrass

Ecological Site

Dugway 023XY005NV

Jpd ke 023XY010NV

Inclusion 1 024XY022NV

Inclusion 2 024XY008NV

Inclusion 3 023XY002NV

1325--Reywat-Devada-Hart Camp association

Composition

Major Components

Reywat very stony loam, 4 to 15 percent slopes--40 percent

Devada very cobbly loam, 2 to 15 percent slopes--26 percent

Hart Camp stony loam, 4 to 30 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Reywat stony loam, 15 to 30 percent slopes--8 percent

Inclusion 2 Grassycan very gravelly loam, 4 to 15 percent slopes--3 percent

Inclusion 3 Fiddler very stony loam, 15 to 30 percent slopes--2 percent

Inclusion 4 Menbo very stony loam, 4 to 15 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus

Reywat--Landform Plateaus, geomorphic position backslope, aspect south

Devada--Landform Plateaus, geomorphic position summit

Hart Camp--Landform Plateaus, geomorphic position backslope

Inclusion 1--Landform Plateaus, geomorphic position backslope, aspect south

Inclusion 2--Landform Plateaus, geomorphic position backslope, shape of slope concave

Inclusion 3--Landform Plateaus, geomorphic position backslope, position on slope upper, aspect south

Inclusion 4--Landform Plateaus, geomorphic position backslope, aspect north

Major Component Description

Reywat Series

Elevation 5 600 to 5 800 feet

Precipitation About 12 inches

Air temperature About 45 degrees

Frost-free season About 80 days

Surface rock fragments 10 percent stones and boulders, 10 percent cobbles, 20 percent gravel

Surface layer texture Very stony loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Devada Series

Elevation 5 600 to 5 800 feet

Precipitation About 12 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 30 percent cobbles, 20 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Hart Camp Series*Elevation* 5 600 to 5 800 feet*Precipitation* About 11 inches*Air temperature* About 43 degrees*Frost-free season* About 70 days*Surface rock fragments* 2 percent stones and boulders 5 percent cobbles 15 percent gravel*Surface layer texture* Stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from tuffaceous rocks**Dominant Present Vegetation**

Reywat Thurber needlegrass, big sagebrush bluebunch wheatgrass

Devada Bluebunch wheatgrass, low sagebrush

Hart Camp daho fescue antelope bitterbrush bluebunch wheatgrass mountain big sagebrush

Inclusion 1 Big sagebrush, bluebunch wheatgrass

Inclusion 2 Thurber needlegrass, bluegrass low sagebrush

Inclusion 3 Big sagebrush bluebunch wheatgrass western juniper

Inclusion 4 daho fescue bluebunch wheatgrass mountain big sagebrush

Ecological Site

Reywat 023XY020NV

Devada 023XY031NV

Hart Camp 023XY015NV

Inclusion 1 023XY039NV

Inclusion 2 023XY059NV

Inclusion 3 023XY024NV

Inclusion 4 023XY007NV

1326--Reywat very stony loam, 8 to 30 percent slopes**Composition****Major Components**

Reywat very stony loam, 8 to 30 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Bombadil very stony loam, cool, 4 to 15 percent slopes--8 percent

Inclusion 2 Fiddler extremely stony loam, 15 to 30 percent slopes--4 percent

Inclusion 3 Hartig stony loam, 15 to 30 percent slopes--3 percent

Map Unit Setting*Landscape position* Plateaus

Reywat--Landform: Plateaus, geomorphic position backslope aspect south

Inclusion 1--Landform: Plateaus, geomorphic position summit

Inclusion 2--Landform: Plateaus, geomorphic position backslope position on slope upper

Inclusion 3--Landform: Plateaus, geomorphic position backslope aspect east

Major Component Description**Reywat Series***Elevation* 5 600 to 5 800 feet*Precipitation* About 12 inches*Air temperature* About 45 degrees*Frost-free season* About 80 days*Surface rock fragments* 10 percent stones and boulders 10 percent cobbles 20 percent gravel*Surface layer texture* Very stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from volcanic rocks**Dominant Present Vegetation**

Reywat Thurber needlegrass, big sagebrush bluebunch wheatgrass

Inclusion 1 Thurber needlegrass Wyoming big sagebrush

Inclusion 2 Bluebunch wheatgrass, western juniper

Inclusion 3 Bluebunch wheatgrass mountain big sagebrush

Ecological Site

Reywat 023XY039NV

Inclusion 1 023XY006NV

Inclusion 2 023XY024NV

Inclusion 3 023XY016NV

1327--Reywat-Westbutte-Hapgood association**Composition****Major Components**

Reywat stony loam, 4 to 15 percent slopes--50 percent

Westbutte stony loam, 4 to 30 percent slopes--25 percent

Hapgood very gravelly loam, 15 to 30 percent slopes--10 percent

Contrasting Inclusions

Inclusion 1 Devada very cobbly loam, 4 to 15 percent slopes--5 percent

Inclusion 2 Reywat very stony loam, 30 to 50 percent slopes--5 percent

Inclusion 3 Hart Camp very stony loam, 15 to 30 percent slopes--5 percent

Map Unit Setting*Landscape position* Plateaus

Reywat--Landform: Plateaus, geomorphic position backslope aspect south

Westbutte--Landform: Plateaus, geomorphic position backslope aspect north

Hapgood--Landform: Plateaus, geomorphic position backslope aspect north

Inclusion 1--Landform: Plateaus, geomorphic position summit

Inclusion 2--Landform: Plateaus, geomorphic position backslope aspect south

Inclusion 3--Landform: Plateaus, geomorphic position backslope aspect east

Major Component Description**Reywat Series***Elevation* 5 500 to 5 900 feet*Precipitation* About 12 inches*Air temperature* About 45 degrees*Frost-free season* About 80 days*Surface rock fragments* 2 percent stones and boulders, 10 percent cobbles, 15 percent gravel*Surface layer texture* Stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from volcanic rocks**Westbutte Series***Elevation* 5 500 to 5 900 feet*Precipitation* About 12 inches*Air temperature* About 45 degrees*Frost-free season* About 90 days*Surface rock fragments* 2 percent stones and boulders, 10 percent cobbles, 20 percent gravel*Surface layer texture* Stony loam*Drainage class* Well drained*Dominant parent material* Colluvium derived from volcanic rocks**Hapgood Series***Elevation* 5 500 to 5 900 feet*Precipitation* About 14 inches*Air temperature* About 42 degrees*Frost-free season* About 60 days*Surface rock fragments* 2 percent cobbles, 40 percent gravel*Surface layer texture* Very gravelly loam*Drainage class* Well drained*Dominant parent material* Residuum and colluvium derived from volcanic rocks**Dominant Present Vegetation**

Reywat: Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Westbutte: Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Hapgood: Idaho fescue, mountain big sagebrush, needlegrass, snowberry

Inclusion 1: Thurber needlegrass, bluebunch wheatgrass, low sagebrush

Inclusion 2: Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 3: Antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush

Ecological Site

Reywat 023XY020NV

Westbutte 023XY007NV

Hapgood 023XY065NV

Inclusion 1 023XY031NV

Inclusion 2 023XY039NV

Inclusion 3 023XY015NV

1328--Reywat-Fernpoint association**Composition****Major Components**

Reywat stony loam, 4 to 15 percent slopes--50 percent

Fernpoint very gravelly sandy loam, 8 to 30 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1: Old Camp very stony loam, 2 to 15 percent slopes--8 percent

Inclusion 2: Langston very gravelly sandy loam, 2 to 8 percent slopes--6 percent

Inclusion 3: Orr sandy loam, 2 to 8 percent slopes--1 percent

Map Unit Setting*Landscape position* Plateaus and adjacent basins

Reywat--Landform: Plateaus

Fernpoint--Landform: Beach terraces

Inclusion 1--Landform: Plateaus, geomorphic position summit

Inclusion 2--Landform: Longshore bars (relict)

Inclusion 3--Landform: Alluvial fans

Major Component Description**Reywat Series***Elevation* 5 500 to 6 000 feet*Precipitation* About 12 inches*Air temperature* About 45 degrees*Frost-free season* About 80 days*Surface rock fragments* 2 percent stones and boulders, 10 percent cobbles, 15 percent gravel*Surface layer texture* Stony loam*Drainage class* Well drained*Dominant parent material* Residuum derived from volcanic rocks**Fernpoint Series***Elevation* 5 500 to 6 000 feet*Precipitation* About 11 inches*Air temperature* About 45 degrees*Frost-free season* About 90 days*Surface rock fragments* 40 percent gravel*Surface layer texture* Very gravelly sandy loam*Drainage class* Well drained*Dominant parent material* Alluvium derived from mixed rocks**Dominant Present Vegetation**

Reywat: Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Fernpoint: Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Inclusion 1: Thurber needlegrass, big sagebrush

Inclusion 2: Thurber needlegrass, Wyoming big sagebrush, bottlebrush squarrel

Inclusion 3: Thurber needlegrass, big sagebrush, bluegrass

Ecological Site

Reywat 023XY020NV
 Fernpoint 023XY020NV
 Inclusion 1 023XY006NV
 Inclusion 2 023XY006NV
 Inclusion 3 023XY020NV

1329--Reywat-Devada association**Composition****Major Components**

Reywat very stony loam, 15 to 30 percent slopes--50 percent
 Devada very stony loam, 8 to 30 percent slopes--35 percent

Contrasting Inclusions

Inclusion 1 Uhardi stony loam, 8 to 30 percent slopes--7 percent
 Inclusion 2 Westbutte very stony loam, 15 to 30 percent slopes--5 percent
 Inclusion 3 Old Camp very stony loam, 8 to 30 percent slopes--3 percent

Map Unit Setting

Landscape position Plateaus and hills
 Reywat--Landform Plateaus geomorphic position backslope
 Devada--Landform Plateaus geomorphic position summit
 Inclusion 1--Landform Hills geomorphic position backslope
 Inclusion 2--Landform Plateaus geomorphic position backslope aspect north
 Inclusion 3--Landform Plateaus geomorphic position backslope position on slope lower

Major Component Description**Reywat Series**

Elevation 5 600 to 6 200 feet
 Precipitation About 12 inches
 Air temperature About 45 degrees
 Frost-free season About 80 days
 Surface rock fragments 10 percent stones and boulders, 10 percent cobbles, 20 percent gravel
 Surface layer texture Very stony loam
 Drainage class Well drained
 Dominant parent material Residuum derived from volcanic rocks

Devada Series

Elevation 5 600 to 6 200 feet
 Precipitation About 12 inches
 Air temperature About 45 degrees
 Frost-free season About 90 days
 Surface rock fragments 5 percent stones and boulders, 15 percent cobbles, 20 percent gravel
 Surface layer texture Very stony loam
 Drainage class Well drained
 Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Reywat Thurber needlegrass, big sagebrush, bluebunch wheatgrass
 Devada Thurber needlegrass, bluebunch wheatgrass, owl sagebrush
 Inclusion 1 Thurber needlegrass, big sagebrush, bluebunch wheatgrass
 Inclusion 2 Idaho fescue, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 3 Thurber needlegrass, Wyoming big sagebrush, bluegrass

Ecological Site

Reywat 023XY039NV
 Devada 023XY031NV
 Inclusion 1 023XY020NV
 Inclusion 2 023XY007NV
 Inclusion 3 023XY006NV

1335--Westbutte-Rock outcrop association**Composition****Major Components**

Westbutte stony loam, 30 to 50 percent slopes--70 percent
 Rock outcrop--15 percent

Contrasting Inclusions

Inclusion 1 Hackwood gravelly loam, 2 to 8 percent slopes--8 percent
 Inclusion 2 Fiddler very stony loam, 15 to 50 percent slopes--4 percent
 Inclusion 3 Madeline very stony loam, 8 to 30 percent slopes--3 percent

Map Unit Setting

Landscape position Plateaus
 Westbutte--Landform Plateaus geomorphic position backslope aspect north
 Rock outcrop--Landform Plateaus
 Inclusion 1--Landform Plateaus geomorphic position toeslope, shape of slope concave
 Inclusion 2--Landform Plateaus geomorphic position backslope aspect south
 Inclusion 3--Landform Plateaus geomorphic position backslope aspect east

Major Component Description**Westbutte Series**

Elevation 5 500 to 5 700 feet
 Precipitation About 12 inches
 Air temperature About 45 degrees
 Frost-free season About 90 days
 Surface rock fragments 2 percent stones and boulders, 10 percent cobbles, 20 percent gravel
 Surface layer texture Stony loam
 Drainage class Well drained
 Dominant parent material Colluvium derived from volcanic rocks

Rock outcrop Miscellaneous Area

Elevation 5 500 to 5 700 feet
 Drainage class Excessively drained

Dominant Present Vegetation

Westbutte Idaho fescue bluebunch wheatgrass mountain big sagebrush

Rock outcrop: None

Inclusion 1 Quaking aspen willow

Inclusion 2 Big sagebrush western juniper

Inclusion 3 Idaho fescue antelope bitterbrush bluebunch wheatgrass mountain big sagebrush

Ecological Site

Westbutte 023XY007NV

Rock outcrop: none

Inclusion 1 023XY028NV

Inclusion 2 023XY024NV

Inclusion 3 023XY015NV

Dominant parent material Colluvium derived from volcanic rocks

Ashtre Series

Elevation 6 200 to 6 900 feet

Precipitation About 14 inches

Air temperature About 44 degrees

Frost-free season About 90 days

Surface rock fragments 25 percent gravel

Surface layer texture Gravelly loam

Drainage class Well drained

Dominant parent material Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

Tusune Series

Elevation 6 200 to 6 900 feet

Precipitation About 14 inches

Air temperature About 44 degrees

Frost-free season About 70 days

Surface rock fragments 1 percent stones and boulders 2 percent cobbles 25 percent gravel

Surface layer texture Stony loam

Drainage class Well drained

Dominant parent material Residuum and colluvium derived from pyroclastic and extrusive volcanic rocks

1336--Westbutte-Ashtre-Tusune association**Composition****Major Components**

Westbutte very gravelly loam 8 to 30 percent slopes 45 percent

Ashtre gravelly loam 4 to 30 percent slopes 25 percent

Tusune stony loam 30 to 50 percent slopes 15 percent

Contrasting Inclusions

Inclusion 1 Westbutte extremely gravelly loam 4 to 30 percent slopes 8 percent

Inclusion 2 Westbutte very gravelly loam 30 to 50 percent slopes 3 percent

Inclusion 3 Nutzan very gravelly sandy loam 4 to 30 percent slopes 3 percent

Inclusion 4 N Hamile very gravelly loam 4 to 30 percent slopes 1 percent

Map Unit Setting

Landscape position Plateaus and mountains

Westbutte--Landform Plateaus, geomorphic position backslope aspect south

Ashtre--Landform Plateaus, geomorphic position shoulder shape of slope plane

Tusune--Landform Plateaus, geomorphic position backslope position on slope upper aspect north

Inclusion 1--Landform Plateaus, geomorphic position shoulder

Inclusion 2--Landform Mountains, geomorphic position backslope aspect south

Inclusion 3--Landform Mountains, geomorphic position backslope

Inclusion 4--Landform Plateaus, geomorphic position summit

Major Component Description**Westbutte Series**

Elevation 6 200 to 6 900 feet

Precipitation About 12 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 10 percent cobbles 40 percent gravel

Surface layer texture Very gravelly loam

Drainage class Well drained

Dominant Present Vegetation

Westbutte Idaho fescue antelope bitterbrush bluebunch wheatgrass mountain big sagebrush

Ashtre Idaho fescue mountain big sagebrush needlegrass

Tusune Idaho fescue mountain big sagebrush

Inclusion 1 Idaho fescue mountain big sagebrush needlegrass

Inclusion 2 Idaho fescue bluebunch wheatgrass mountain big sagebrush

Inclusion 3 Idaho fescue antelope bitterbrush mountain big sagebrush needlegrass

Inclusion 4 Idaho fescue bluebunch wheatgrass low sagebrush

Ecological Site

Westbutte 023XY007NV

Ashtre 023XY094NV

Tusune 023XY054NV

Inclusion 1 023XY061NV

Inclusion 2 023XY007NV

Inclusion 3 023XY066NV

Inclusion 4 023XY017NV

1345--Layview-Hapgood association**Composition****Major Components**

Layview very gravelly loam 4 to 30 percent slopes 50 percent

Hapgood very gravelly loam 4 to 30 percent slopes 35 percent

Contrasting Inclusions

Inclusion 1 Lithic Argixerolls, loamy-skeletal mixed frigid extremely gravelly sandy loam 2 to 8 percent slopes 8 percent

- Inclusion 2 Badgercamp very stony loam 4 to 30 percent slopes--4 percent
 Inclusion 3 Hackwood gravelly loam, cold 15 to 30 percent slopes--3 percent

Map Unit Setting

- Landscape position* Plateaus
 Layview--Landform Plateaus, geomorphic position shoulder
 Hapgood--Landform Plateaus, geomorphic position backslope shape of slope concave aspect north
 Inclusion 1--Landform Plateaus, geomorphic position summit
 Inclusion 2--Landform Plateaus, geomorphic position shoulder
 Inclusion 3--Landform Plateaus, geomorphic position backslope position on slope upper aspect north

Major Component Description

Layview Series

- Elevation* 6 800 to 7 000 feet
Precipitation About 14 inches
Air temperature About 43 degrees
Frost-free season About 50 days
Surface rock fragments 5 percent cobbles 40 percent gravel
Surface layer texture Very gravelly loam
Drainage class Well drained
Dominant parent material Residuum and colluvium derived from volcanic rocks

Hapgood Series

- Elevation* 6 800 to 7 000 feet
Precipitation About 14 inches
Air temperature About 42 degrees
Frost-free season About 60 days
Surface rock fragments 2 percent cobbles 40 percent gravel
Surface layer texture Very gravelly loam
Drainage class Well drained
Dominant parent material Residuum and colluvium derived from volcanic rocks

Dominant Present Vegetation

- Layview Idaho fescue, low sagebrush
 Hapgood Idaho fescue, mountain big sagebrush, needlegrass
 Inclusion 1 Idaho fescue, bluegrass, low sagebrush
 Inclusion 2 Idaho fescue, mountain big sagebrush, curlleaf mountainmahogany, needlegrass
 Inclusion 3 Quaking aspen

Ecological Site

- Layview Q23XY014NV
 Hapgood Q23XY065NV
 Inclusion 1 Q23XY008NV
 Inclusion 2 Q23XY026NV
 Inclusion 3 Q23XY027NV

1346--Layview-Westbutte-Hapgood association

Composition

Major Components

- Layview very gravelly loam 4 to 30 percent slopes--40 percent
 Westbutte stony loam 4 to 30 percent slopes--30 percent
 Hapgood very gravelly loam 4 to 30 percent slopes--15 percent

Contrasting Inclusions

- Inclusion 1 Layview extremely gravelly sandy loam 4 to 15 percent slopes--8 percent
 Inclusion 2 Badgercamp bouldery loam 4 to 30 percent slopes--5 percent
 Inclusion 3 Cumulic Cryaquolls, fine-loamy mixed sandy loam 0 to 2 percent slopes--2 percent

Map Unit Setting

- Landscape position* Plateaus
 Layview--Landform Plateaus, geomorphic position shoulder
 Westbutte--Landform Plateaus, geomorphic position backslope, aspect south
 Hapgood--Landform Plateaus, geomorphic position backslope shape of slope concave aspect north
 Inclusion 1--Landform Plateaus, geomorphic position summit
 Inclusion 2--Landform Plateaus, geomorphic position shoulder
 Inclusion 3--Landform Depressions

Major Component Description

Layview Series

- Elevation* 6 800 to 7 000 feet
Precipitation About 14 inches
Air temperature About 43 degrees
Frost-free season About 50 days
Surface rock fragments 5 percent cobbles 40 percent gravel
Surface layer texture Very gravelly loam
Drainage class Well drained
Dominant parent material Residuum and colluvium derived from volcanic rocks

Westbutte Series

- Elevation* 6 500 to 7 000 feet
Precipitation About 12 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 2 percent stones and boulders 10 percent cobbles 10 percent gravel
Surface layer texture Stony loam
Drainage class Well drained
Dominant parent material Colluvium derived from volcanic rocks

Hapgood Series

- Elevation* 6 500 to 7 000 feet
Precipitation About 14 inches
Air temperature About 42 degrees
Frost-free season About 60 days
Surface rock fragments 2 percent cobbles 40 percent gravel

Surface layer texture Very gravelly loam
Drainage class Well drained
Dominant parent material Residuum and colluvium derived from volcanic rocks

Dominant Present Vegetation

Layview Idaho fescue, low sagebrush
 Westbutte Idaho fescue, bluebunch wheatgrass, mountain big sagebrush
 Hapgood Idaho fescue, mountain big sagebrush, needlegrass
 Inclusion 1 Idaho fescue, bluegrass, low sagebrush
 Inclusion 2 Idaho fescue, big sagebrush, curleaf mountainmahogany, needlegrass
 Inclusion 3 Bluegrass

Ecological Site

Layview 023XY014NV
 Westbutte 023XY007NV
 Hapgood 023XY065NV
 Inclusion 1 023XY008NV
 Inclusion 2 023XY026NV
 Inclusion 3 023XY013NV

1355--Badgercamp-Hackwood-Easte association, 4 to 30 percent slopes

Composition

Major Components

Badgercamp bouldery loam, 4 to 30 percent slopes--50 percent
 Hackwood gravelly loam, 15 to 30 percent slopes--20 percent
 Easte very gravelly sandy loam, 15 to 30 percent slopes--15 percent

Contrasting inclusions

Inclusion 1 Hackwood gravelly loam, cold, 15 to 50 percent slopes--6 percent
 Inclusion 2 Westbutte very gravelly loam, 4 to 30 percent slopes--5 percent
 Inclusion 3 Pacific Cryoborolls, loamy-skeletal, mixed, very gravelly loam, 15 to 30 percent slopes--2 percent
 Inclusion 4 Welch clay loam, 0 to 2 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus
 Badgercamp--Landform Plateaus, geomorphic position summit
 Hackwood--Landform Plateaus, geomorphic position backslope, position on slope upper
 Easte--Landform Plateaus, geomorphic position, shoulder position on slope upper, shape of slope concave
 Inclusion 1--Landform Plateaus, geomorphic position backslope, position on slope upper, aspect north
 Inclusion 2--Landform Plateaus, geomorphic position shoulder
 Inclusion 3--Landform Plateaus, geomorphic position

backslope
 Inclusion 4--Landform Inset fans

Major Component Description

Badgercamp Series

Elevation 6 000 to 7 000 feet
Precipitation About 16 inches
Air temperature About 40 degrees
Frost-free season About 50 days
Surface rock fragments 2 percent stones and boulders, 2 percent cobbles, 10 percent gravel
Surface layer texture Bouldery loam
Drainage class Well drained
Dominant parent material Residuum derived from tuffaceous rocks

Hackwood Series

Elevation 6 000 to 7 000 feet
Precipitation About 16 inches
Air temperature About 41 degrees
Frost-free season About 50 days
Surface rock fragments 5 percent cobbles, 20 percent gravel
Surface layer texture Gravelly loam
Drainage class Well drained
Dominant parent material Colluvium derived from volcanic rocks

Easte Series

Elevation 6 000 to 7 000 feet
Precipitation About 17 inches
Air temperature About 44 degrees
Frost-free season About 70 days
Surface rock fragments 10 percent cobbles, 40 percent gravel
Surface layer texture Very gravelly sandy loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Badgercamp Idaho fescue, mountain big sagebrush, curleaf mountainmahogany, needlegrass
 Hackwood Bluegrass, quaking aspen, snowberry
 Easte Snowbrush, ceanothus, white fir
 Inclusion 1 Bluegrass, quaking aspen, snowberry
 Inclusion 2 Idaho fescue, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 3 Mountain big sagebrush, mountain brome, needlegrass
 Inclusion 4 Bluegrass, rush

Ecological Site

Badgercamp 023XY026NV
 Hackwood 023XY028NV
 Easte 023XY092NV
 Inclusion 1 023XY027NV
 Inclusion 2 023XY007NV
 Inclusion 3 023XY019NV
 Inclusion 4 023XY025NV

1356--Badgercamp-Hackwood-Easte association, 30 to 70 percent slopes

Composition

Major Components

Badgercamp bouldery loam, 30 to 70 percent slopes--60 percent
 Hackwood gravelly loam, 30 to 70 percent slopes--15 percent
 Easte very gravelly sandy loam, 30 to 70 percent slopes--10 percent

Contrasting Inclusions

Inclusion 1 Hackwood very cobbly loam, cold, 15 to 70 percent slopes--6 percent
 Inclusion 2 Hapgood very gravelly loam, 30 to 50 percent slopes--4 percent
 Inclusion 3 Westbulte very gravelly loam, 30 to 50 percent slopes--3 percent
 Inclusion 4 Pacific Cryoborolls loamy-skeletal, mixed very gravelly loam, 15 to 30 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus

Badgercamp--Landform Plateaus, geomorphic position summit

Hackwood--Landform Plateaus, geomorphic position backslope position on slope upper

Easte--Landform Plateaus, geomorphic position shoulder position on slope upper shape of slope concave

Inclusion 1--Landform Plateaus, geomorphic position backslope position on slope upper aspect north

Inclusion 2--Landform Plateaus, geomorphic position backslope aspect east

Inclusion 3--Landform Plateaus, geomorphic position backslope aspect north

Inclusion 4--Landform Plateaus, geomorphic position backslope aspect north

Major Component Description

Badgercamp Series

Elevation 6 000 to 7 000 feet

Precipitation About 16 inches

Air temperature About 40 degrees

Frost-free season About 50 days

Surface rock fragments 2 percent stones and boulders, 2 percent cobbles, 10 percent gravel

Surface layer texture Bouldery loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Hackwood Series

Elevation 6 000 to 7 000 feet

Precipitation About 18 inches

Air temperature About 41 degrees

Frost-free season About 50 days

Surface rock fragments 5 percent cobbles, 20 percent gravel

Surface layer texture Gravelly loam

Drainage class Well drained

Dominant parent material Colluvium derived from volcanic rocks

Easte Series

Elevation 6 000 to 7 000 feet

Precipitation About 17 inches

Air temperature About 44 degrees

Frost-free season About 70 days

Surface rock fragments 10 percent cobbles, 40 percent gravel

Surface layer texture Very gravelly sandy loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Badgercamp Idaho fescue, mountain big sagebrush

curleaf mountainmahogany, needlegrass

Hackwood Bluegrass, quaking aspen, snowberry

Easte Snowbrush, ceanothus, white fir

Inclusion 1 Quaking aspen

Inclusion 2 Idaho fescue, mountain big sagebrush, needlegrass

Inclusion 3 Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Inclusion 4 Mountain big sagebrush, mountain brome, needlegrass

Ecological Site

Badgercamp 023XY026NV

Hackwood 023XY028NV

Easte 023XY092NV

Inclusion 1 023XY027NV

Inclusion 2 023XY065NV

Inclusion 3 023XY007NV

Inclusion 4 023XY019NV

1358--Badgercamp-Hackwood association

Composition

Major Components

Badgercamp bouldery loam, 4 to 30 percent slopes--60 percent

Hackwood gravelly loam, 15 to 30 percent slopes--25 percent

Contrasting Inclusions

Inclusion 1 Menbo very stony loam, 15 to 50 percent slopes--7 percent

Inclusion 2 Hapgood very gravelly loam, 15 to 50 percent slopes--4 percent

Inclusion 3 Hartig very gravelly loam, 8 to 30 percent slopes--4 percent

Map Unit Setting

Landscape position Plateaus

Badgercamp--Landform Plateaus, geomorphic position summit

Hackwood--Landform Plateaus, geomorphic position backslope, position on slope upper

Inclusion 1--Landform Plateaus, geomorphic position backslope

Inclusion 2--Landform Plateaus, geomorphic position backslope, shape of slope concave

Inclusion 3--Landform Plateaus, geomorphic position backslope, aspect south

Major Component Description**Badgercamp Series***Elevation* 6,100 to 6,800 feet*Precipitation* About 16 inches*Air temperature* About 40 degrees*Frost-free season* About 50 days*Surface rock fragments* 2 percent stones and boulders, 2 percent cobbles, 10 percent gravel*Surface layer texture* Bouldery loam*Drainage class* Well drained*Dominant parent material* Residuum derived from tuffaceous rocks**Hackwood Series***Elevation* 6,100 to 6,800 feet*Precipitation* About 16 inches*Air temperature* About 41 degrees*Frost-free season* About 50 days*Surface rock fragments* 5 percent cobbles, 20 percent gravel*Surface layer texture* Gravelly loam*Drainage class* Well drained*Dominant parent material* Conuvium derived from volcanic rocks**Dominant Present Vegetation**

Badgercamp Idaho fescue mountain big sagebrush, curl leaf mountain mahogany, needlegrass

Hackwood Bluegrass, quaking aspen, snowberry
Inclusion 1 Idaho fescue, bluebunch wheatgrass, mountain big sagebrush

Inclusion 2 Idaho fescue, mountain big sagebrush, needlegrass

Inclusion 3 Bluebunch wheatgrass, mountain big sagebrush

Ecological Site

Badgercamp 023XY026NV

Hackwood 023XY028NV

Inclusion 1 023XY007NV

Inclusion 2 023XY065NV

Inclusion 3 023XY016NV

1360--Welch clay loam, 0 to 4 percent slopes**Composition****Major Components**

Welch clay loam 0 to 4 percent slopes--90 percent

Contrasting Inclusions

Inclusion 1 Welch loam 0 to 2 percent slopes, rarely flooded--8 percent

Inclusion 2 Cumulic Haploxerolls fine-loamy mixed, frigid fine sandy loam 0 to 2 percent slopes--2 percent

Map Unit Setting*Landscape position* Fan piedmonts

Welch--Landform Inset fans

Inclusion 1--Landform Alluvial fans

Inclusion 2--Landform Inset fans

Major Component Description**Welch Series***Elevation* 6,200 to 6,800 feet*Precipitation* About 14 inches*Air temperature* About 43 degrees*Frost-free season* About 60 days*Surface layer texture* Clay loam*Drainage class* Very poorly drained*Dominant parent material* Alluvium derived from pyroclastic and extrusive volcanic rocks**Dominant Present Vegetation**

Welch Bluegrass, rush sedge

Inclusion 1 Nevada bluegrass

Inclusion 2 Basin big sagebrush, basin wildrye

Ecological Site

Welch 023XY025NV

Inclusion 1 023XY013NV

Inclusion 2 023XY005NV

1361--Wetvit association**Composition****Major Components**

Wetvit fine sandy loam 0 to 2 percent slopes--50 percent

Wetvit fine sandy loam 0 to 2 percent slopes, occasionally flooded--40 percent

Contrasting Inclusions

Inclusion 1 Weezweed loam 0 to 2 percent slopes--5 percent

Inclusion 2 Uplike silt loam 0 to 2 percent slopes--3 percent

Inclusion 3 Skullwax silt loam 0 to 2 percent slopes--2 percent

Map Unit Setting*Landscape position* Intermontane basins

Wetvit--Landform Flood plains, position on slope lower

Wetvit--Landform Flood plains, position on slope upper

Inclusion 1--Landform Stream terraces

Inclusion 2--Landform Lake terraces

Inclusion 3--Landform Basin floors

Major Component Description**Wetvit Series***Elevation* 4,400 to 5,600 feet*Precipitation* About 10 inches*Air temperature* About 46 degrees*Frost-free season* About 90 days*Surface layer texture* Fine sandy loam*Drainage class* Very poorly drained*Dominant parent material* Alluvium derived from pyroclastic and extrusive volcanic rocks**Wetvit Series***Elevation* 4,400 to 5,600 feet*Precipitation* About 10 inches*Air temperature* About 46 degrees*Frost-free season* About 90 days*Surface layer texture* Fine sandy loam

Drainage class Very poorly drained
Dominant parent material Alluvium derived from pyroclastic and extrusive volcanic rocks

Dominant Present Vegetation

Wetv t Nevada bluegrass, rush sedge
 Wetv t, Nevada bluegrass sedge
 inclusion 1 Basin big sagebrush basin wildrye
 inclusion 2 Nevada bluegrass, basin wildrye, black greasewood, rubber rabbitbrush
 inclusion 3 Nevada bluegrass, alkali grass, inland salt grass

Ecological Site

Wetv t 023XY089NV
 Wetv t 023XY013NV
 inclusion 1 023XY005NV
 inclusion 2 023XY010NV
 inclusion 3 023XY002NV

1365--Rubble land-Dosie association

Composition

Major Components

Rubble land fragmental material 30 to 50 percent slopes--50 percent
 Dosie very stony loam 30 to 50 percent slopes--25 percent

Contrasting Inclusions

inclusion 1 Pacific Argixerolls loamy-skeletal mixed frigid very stony loam 30 to 70 percent slopes--10 percent
 inclusion 2 Fiddler extremely stony loam, 30 to 50 percent slopes--2 percent
 inclusion 3 Westbutte extremely stony loam, 15 to 50 percent slopes--2 percent
 inclusion 4 Hackwood gravelly loam, 15 to 30 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus
Rubble land--Landform Plateaus
Dosie--Landform Plateaus, geomorphic position backslope
Inclusion 1--Landform Plateaus, geomorphic position backslope, shape of slope concave
Inclusion 2--Landform Plateaus, geomorphic position shoulder, aspect south
Inclusion 3--Landform Plateaus, geomorphic position backslope, aspect north
Inclusion 4--Landform Plateaus, geomorphic position backslope, position on slope upper, aspect north

Major Component Description

Rubble land Miscellaneous Area

Elevation 5 700 to 6 200 feet
Surface layer texture Fragmental material
Drainage class Excessively drained

Dosie Series

Elevation 5 700 to 6 200 feet

Precipitation About 14 inches
Air temperature About 44 degrees
Frost-free season About 70 days
Surface rock fragments 10 percent stones and boulders 10 percent cobbles, 30 percent gravel
Surface layer texture Very stony loam
Drainage class Well drained
Dominant parent material Colluvium derived from volcanic rocks

Dominant Present Vegetation

Rubble land None
 Dosie Antelope bitterbrush, basin wildrye, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 1 Basin wildrye, big sagebrush, bluebunch wheatgrass
 Inclusion 2 Big sagebrush, western juniper
 Inclusion 3 Idaho fescue, antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 4 Quaking aspen

Ecological Site

Dosie 023XY016NV
 Rubble land none
 Inclusion 1 023XY041NV
 Inclusion 2 023XY024NV
 Inclusion 3 023XY007NV
 Inclusion 4 023XY028NV

1366--Dosie very stony loam, 15 to 50 percent slopes

Composition

Major Components

Dosie very stony loam, 15 to 50 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Pacific Argixerolls loamy-skeletal mixed frigid stony loam 15 to 70 percent slopes 10 percent
 Inclusion 2 Westbutte stony loam 15 to 30 percent slopes--2 percent
 Inclusion 3 Zymans very cobbly loam, 15 to 30 percent slopes--2 percent
 Inclusion 4 Hart Camp stony loam 15 to 30 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus and hills
Dosie--Landform Plateaus, geomorphic position backslope
Inclusion 1--Landform Plateaus, geomorphic position backslope, aspect northeast
Inclusion 2--Landform Plateaus, geomorphic position backslope, aspect north
Inclusion 3--Landform Hills, geomorphic position backslope, position on slope lower
Inclusion 4--Landform Pediments

Major Component Description

Dosie Series

Elevation 5 600 to 6 600 feet

Precipitation About 14 inches
Air temperature About 44 degrees
Frost-free season About 70 days
Surface rock fragments 10 percent stones and boulders
 10 percent cobbles, 30 percent gravel
Surface layer texture Very stony loam
Drainage class Well drained
Dominant parent material Colluvium derived from volcanic rocks

Dominant Present Vegetation

Dosie Basin wildrye, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 1 Bluebunch wheatgrass, mountain big sagebrush
 Inclusion 2 Idaho fescue, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 3 Thurber needlegrass, big sagebrush, bluebunch wheatgrass
 Inclusion 4 Antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush

Ecological Site

Dosie 023XY016NV
 Inclusion 1 023XY041NV
 Inclusion 2 023XY007NV
 Inclusion 3 023XY020NV
 Inclusion 4 023XY015NV

1367--Dosie-Fiddler-Rubble land association

Composition

Major Components

Dosie very stony loam, 30 to 50 percent slopes--40 percent
 Fiddler very stony loam, 30 to 50 percent slopes--25 percent
 Rubble land fragmental material, 30 to 50 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Devada very stony loam, 15 to 50 percent slopes--6 percent
 Inclusion 2 Buckake very stony loam, 15 to 50 percent slopes--4 percent
 Inclusion 3 Westbulte stony loam, 15 to 50 percent slopes--3 percent
 Inclusion 4 Hart Camp stony loam, 15 to 30 percent slopes--2 percent

Map Unit Setting

Landscape position Plateaus
 Dosie--Landform: Plateaus, geomorphic position: backslope
 Fiddler--Landform: Plateaus, geomorphic position: backslope, position on slope: upper
 Rubble land--Landform: Escarpments
 Inclusion 1--Landform: Plateaus
 Inclusion 2--Landform: Plateaus, geomorphic position: backslope, aspect: south
 Inclusion 3--Landform: Plateaus, geomorphic position: backslope, aspect: north

Inclusion 4--Landform: Pediments, aspect: east

Major Component Description

Dosie Series

Elevation 5,700 to 6,200 feet
Precipitation About 14 inches
Air temperature About 44 degrees
Frost-free season About 70 days
Surface rock fragments 10 percent stones and boulders
 10 percent cobbles, 30 percent gravel
Surface layer texture Very stony loam
Drainage class Well drained
Dominant parent material Colluvium derived from volcanic rocks

Fiddler Series

Elevation 5,700 to 6,200 feet
Precipitation About 13 inches
Air temperature About 45 degrees
Frost-free season About 80 days
Surface rock fragments 10 percent stones and boulders
 15 percent cobbles, 20 percent gravel
Surface layer texture Very stony loam
Drainage class Well drained
Dominant parent material Residuum derived from volcanic rocks

Rubble land Miscellaneous Area

Elevation 5,700 to 6,200 feet
Surface layer texture Fragmental material
Drainage class Excessively drained

Dominant Present Vegetation

Dosie Basin wildrye, bluebunch wheatgrass, mountain big sagebrush
 Fiddler Bluebunch wheatgrass, western juniper
 Rubble land None
 Inclusion 1 Thurber needlegrass, bluebunch wheatgrass, low sagebrush
 Inclusion 2 Big sagebrush, bluebunch wheatgrass
 Inclusion 3 Idaho fescue, bluebunch wheatgrass, mountain big sagebrush
 Inclusion 4 Antelope bitterbrush, bluebunch wheatgrass, mountain big sagebrush

Ecological Site

Dosie 023XY016NV
 Fiddler 023XY024NV
 Rubble land none
 Inclusion 1 023XY031NV
 Inclusion 2 023XY039NV
 Inclusion 3 023XY007NV
 Inclusion 4 023XY015NV

1375--Cotant-Madeline association

Composition

Major Components

Cotant very gravelly loam, 4 to 15 percent slopes--60 percent

Madeline very cobbly loam, 4 to 15 percent slopes--25 percent

Contrasting Inclusions

Inclusion 1--Ninemile very cobbly loam, 4 to 15 percent slopes--8 percent

Inclusion 2--Newlands stony loam, 4 to 15 percent slopes--7 percent

Map Unit Setting

Landscape position Plateaus

Cotant--Landform Plateaus, geomorphic position toeslope

Madeline--Landform Plateaus, geomorphic position summit

Inclusion 1--Landform Plateaus

Inclusion 2--Landform Plateaus, geomorphic position backslope, aspect north

Major Component Description

Cotant Series

Elevation 6 500 to 6 800 feet

Precipitation About 13 inches

Air temperature About 44 degrees

Frost-free season About 80 days

Surface rock fragments 5 percent cobbles, 40 percent gravel

Surface layer texture Very gravelly loam

Drainage class Well drained

Dominant parent material Residuum and colluvium derived from tuffaceous rocks

Madeline Series

Elevation 6 500 to 6 800 feet

Precipitation About 13 inches

Air temperature About 44 degrees

Frost-free season About 80 days

Surface rock fragments 20 percent cobbles, 30 percent gravel

Surface layer texture Very cobbly loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Dominant Present Vegetation

Cotant Idaho fescue, bluebunch wheatgrass, low sagebrush

Madeline Antelope bitterbrush, bluegrass, mountain big sagebrush

Inclusion 1 Idaho fescue, bluebunch wheatgrass, low sagebrush

Inclusion 2 Idaho fescue, mountain big sagebrush, needlegrass

Ecological Site

Cotant 023XY017NV

Madeline 023XY015NV

Inclusion 1 023XY017NV

Inclusion 2 023XY065NV

1380--Weimer-Boulder Lake association

Composition

Major Components

Weimer clay, 0 to 2 percent slopes--70 percent

Boulder Lake silty clay, 0 to 2 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Welch loam, 0 to 2 percent slopes, rarely flooded--8 percent

Inclusion 2 Macyflat silt loam, 0 to 2 percent slopes--2 percent

Map Unit Setting

Landscape position Lake plains

Weimer--Landform Lake plains, position on slope lower

Boulder Lake--Landform Lake plains

Inclusion 1--Landform Inset fans

Inclusion 2--Landform Lake plains

Major Component Description

Weimer Series

Elevation 5 500 to 6 500 feet

Precipitation About 12 inches

Air temperature About 43 degrees

Frost-free season About 60 days

Surface layer texture Clay

Drainage class Poorly drained

Dominant parent material Alluvium derived from mixed rocks and lake sediments

Boulder Lake Series

Elevation 5 500 to 6 500 feet

Precipitation About 12 inches

Air temperature About 43 degrees

Frost-free season About 80 days

Surface layer texture Silty clay

Drainage class Very poorly drained

Dominant parent material Alluvium derived from mixed rocks and lake sediments

Dominant Present Vegetation

Weimer Rush, sedge

Boulder Lake Bluegrass, silver sagebrush

Inclusion 1 Nevada bluegrass

Inclusion 2 Alkali sagebrush, bluegrass

Ecological Site

Weimer 023XY023NV

Boulder Lake 023XY003NV

Inclusion 1 023XY013NV

Inclusion 2 023XY090NV

1385--Fernpoint very gravelly sandy loam, 8 to 30 percent slopes

Composition

Major Components

Fernpoint very gravelly sandy loam, 8 to 30 percent slopes--85 percent

Contrasting Inclusions

- Inclusion 1 Davey loamy fine sand, 2 to 8 percent slopes--6 percent
 Inclusion 2 Schamp very gravelly loam, 4 to 15 percent slopes--6 percent
 Inclusion 3 Zymans very cobbly loam, 4 to 15 percent slopes--4 percent

Map Unit Setting

Landscape position Hills and intermontane basins
 Fernpoint--Landform Beach terraces
 Inclusion 1--Landform Beach terraces
 Inclusion 2--Landform Hills, geomorphic position backslope position on slope lower
 Inclusion 3--Landform Hills, geomorphic position backslope position on slope upper

Major Component Description**Fernpoint Series**

Elevation 5,500 to 6,000 feet
Precipitation About 11 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 40 percent gravel
Surface layer texture Very gravelly sandy loam
Drainage class Well drained
Dominant parent material Alluvium derived from mixed rocks

Dominant Present Vegetation

Fernpoint Thurber needlegrass, big sagebrush, bluebunch wheatgrass
 Inclusion 1 Indian ricegrass, basin big sagebrush, needleandthread
 Inclusion 2 Thurber needlegrass, Wyoming big sagebrush
 Inclusion 3 Thurber needlegrass, big sagebrush, bluebunch wheatgrass

Ecological Site

Fernpoint 023XY020NV
 Inclusion 1 023XY051NV
 Inclusion 2 023XY006NV
 Inclusion 3 023XY020NV

1395--Orr-Fernpoint association**Composition****Major Components**

Orr sandy loam, 2 to 8 percent slopes--65 percent
 Fernpoint very gravelly sandy loam, 8 to 30 percent slopes--20 percent

Contrasting Inclusions

- Inclusion 1 Orr very gravelly sandy loam, 8 to 30 percent slopes--8 percent
 Inclusion 2 Fernpoint very stony loam, 4 to 30 percent slopes--5 percent
 Inclusion 3 Dugway silt loam, 0 to 2 percent slopes--2 percent

Map Unit Setting

Landscape position Bolsons

Orr Landform Alluvial fans

Fernpoint--Landform Beach terraces

Inclusion 1 Landform Alluvial fans, geomorphic position backslope

Inclusion 2--Landform Beach terraces position on slope upper

Inclusion 3--Landform Lake terraces position on slope lower

Major Component Description**Orr Series**

Elevation 5,500 to 6,000 feet
Precipitation About 11 inches
Air temperature About 49 degrees
Frost-free season About 90 days
Surface rock fragments 10 percent gravel
Surface layer texture Sandy loam
Drainage class Well drained
Dominant parent material Alluvium derived from mixed rocks

Fernpoint Series

Elevation 5,500 to 6,000 feet
Precipitation About 11 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 40 percent gravel
Surface layer texture Very gravelly sandy loam
Drainage class Well drained
Dominant parent material Alluvium derived from mixed rocks

Dominant Present Vegetation

Orr Thurber needlegrass, big sagebrush
 Fernpoint Thurber needlegrass, big sagebrush, bluebunch wheatgrass
 Inclusion 1 Thurber needlegrass, big sagebrush, bluegrass
 Inclusion 2 Thurber needlegrass, big sagebrush, bluebunch wheatgrass, bluegrass
 Inclusion 3 Big sagebrush, bottlebrush squirreltail, rabbitbrush

Ecological Site

Orr 023XY020NV
 Fernpoint 023XY020NV
 Inclusion 1 023XY020NV
 Inclusion 2 023XY020NV
 Inclusion 3 023XY005NV

1400--Bombadil-Ceejay association**Composition****Major Components**

Bombadil very stony loam, cool 4 to 30 percent slopes--45 percent

Ceejay stony loam, 4 to 30 percent slopes--40 percent

Contrasting Inclusions

- Inclusion 1 Old Camp very stony sandy loam, 4 to 30 percent slopes--6 percent

Inclusion 2 Reywat very stony loam, 15 to 50 percent

slopes--4 percent

Inclusion 3 Ceejay very stony sandy loam, 30 to 50 percent slopes--4 percent

Inclusion 4 Rock outcrop--1 percent

Map Unit Setting

Landscape position Plateaus

Bombadi--Landform Plateaus, geomorphic position summit

Ceejay--Landform Plateaus, geomorphic position summit

Inclusion 1--Landform Plateaus, geomorphic position backslope

Inclusion 2--Landform Plateaus, geomorphic position backslope position on slope upper

Inclusion 3--Landform Plateaus, geomorphic position backslope

Inclusion 4--Landform Plateaus

Major Component Description

Bombadi Series

Elevation 4 800 to 5 000 feet

Precipitation About 10 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 5 percent stones and boulders, 10 percent cobbles, 25 percent gravel

Surface layer texture Very stony loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Ceejay Series

Elevation 4 800 to 5 000 feet

Precipitation About 9 inches

Air temperature About 49 degrees

Frost-free season About 100 days

Surface rock fragments 2 percent stones and boulders, 10 percent cobbles, 40 percent gravel

Surface layer texture Stony loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Bombadi Thurber needlegrass, Wyoming big sagebrush

Ceejay Thurber needlegrass, bluegrass, sagebrush

Inclusion 1 Thurber needlegrass, Wyoming big sagebrush, bluegrass

Inclusion 2 Thurber needlegrass, big sagebrush

Inclusion 3 Thurber needlegrass, bluegrass, sagebrush

Inclusion 4 None

Ecological Site

Bombadi 023XY006NV

Ceejay 023XY093NV

Inclusion 1 023XY006NV

Inclusion 2 023XY039NV

Inclusion 3 023XY093NV

Inclusion 4 none

1410--Fulstone-Saraph-Tuffo association

Composition

Major Components

Fulstone very gravelly sandy loam, 2 to 15 percent slopes--35 percent

Saraph very gravelly sandy loam, 4 to 30 percent slopes--30 percent

Tuffo very gravelly sandy loam, 15 to 50 percent slopes--20 percent

Contrasting Inclusions

Inclusion 1 Vitricerandic Haplargids, Ashy, mesic sandy loam, 0 to 4 percent slopes--5 percent

Inclusion 2 Argidic Argids, loamy, mixed, mesic, shallow, very gravelly sandy loam, 4 to 15 percent slopes--5 percent

Inclusion 3 Ceejay very gravelly sandy loam, 4 to 15 percent slopes--5 percent

Map Unit Setting

Landscape position Hills and intermontane basins

Fulstone--Landform Fan remnants, geomorphic position summit

Saraph--Landform Ash flows, geomorphic position backslope

Tuffo--Landform Ash flows, geomorphic position backslope

Inclusion 1--Landform Inset fans

Inclusion 2--Landform Fan remnants, geomorphic position shoulder

Inclusion 3--Landform Plateaus, geomorphic position summit

Major Component Description

Fulstone Series

Elevation 5 300 to 5 800 feet

Precipitation About 9 inches

Air temperature About 51 degrees

Frost-free season About 100 days

Surface rock fragments 5 percent cobbles, 45 percent gravel

Surface layer texture Very gravelly sandy loam

Drainage class Well drained

Dominant parent material Alluvium derived from mixed rocks

Saraph Series

Elevation 5 300 to 5 800 feet

Precipitation About 10 inches

Air temperature About 45 degrees

Frost-free season About 90 days

Surface rock fragments 50 percent gravel

Surface layer texture Very gravelly sandy loam

Drainage class Well drained

Dominant parent material Residuum derived from tuffaceous rocks

Tuffo Series

Elevation 5 300 to 5 800 feet

Precipitation About 10 inches

Air temperature About 45 degrees

Frost-free season About 100 days

Surface rock fragments 35 percent gravel

Surface layer texture Very gravelly sandy loam
Drainage class Somewhat excessively drained
Dominant parent material Residuum derived from
 tuffaceous rocks

Dominant Present Vegetation

Fulstone Thurber needlegrass, bluegrass, sagebrush
 Saraph Thurber needlegrass, Wyoming big sagebrush,
 bluegrass
 Tuffo Wyoming big sagebrush, needlegrass, sagebrush
 Inclusion 1 Douglas rabbitbrush, basin big sagebrush,
 basin wildrye, rubber rabbitbrush
 Inclusion 2 Thurber needlegrass, Wyoming big
 sagebrush, bluegrass
 Inclusion 3 Thurber needlegrass, bluegrass, sagebrush

Ecological Site

Fulstone 023XY093NV
 Saraph 023XY006NV
 Tuffo 023XY088NV
 Inclusion 1 023XY082NV
 Inclusion 2 023XY006NV
 Inclusion 3 023XY093NV

1412--Fulstone-Nellispring-Buttaran association

Composition

Major Components

Fulstone very gravelly sandy loam, 2 to 15 percent slopes-
 40 percent
 Nellispring very gravelly fine sandy loam, 2 to 15 percent
 slopes--25 percent
 Buttaran gravelly silt loam, 2 to 15 percent slopes, 20 percent

Contrasting Inclusions

Inclusion 1 Abruptic Xenic Argidurids, clayey
 montmorillonitic, mesic, shallow very gravelly fine
 sandy loam, 4 to 15 percent slopes--6 percent
 Inclusion 2 Aridic Haploxererts, fine, montmorillonitic,
 mesic cobbly clay, 0 to 4 percent slopes--5 percent
 Inclusion 3 Aridic Haploxererts, fine, montmorillonitic,
 mesic cobbly clay, 0 to 4 percent slopes--3 percent
 Inclusion 4 Rock outcrop--1 percent

Map Unit Setting

Landscape position Plateaus and adjacent bolsons
 Fulstone--Landform Fan remnants, geomorphic position
 summit
 Nellispring--Landform Fan remnants, geomorphic position
 summit, shape of slope concave
 Buttaran--Landform Fan remnants, geomorphic position
 shoulder
 Inclusion 1--Landform Fan remnants, geomorphic
 position summit
 Inclusion 2--Landform Plateaus, geomorphic position
 toeslope, shape of slope convex
 Inclusion 3--Landform Depressions
 Inclusion 4--Landform Plateaus

Major Component Description

Fulstone Series

Elevation 5,500 to 5,900 feet
Precipitation About 9 inches
Air temperature About 51 degrees
Frost-free season About 100 days
Surface rock fragments 5 percent cobbles, 45 percent
 gravel
Surface layer texture Very gravelly sandy loam
Drainage class Well drained
Dominant parent material Alluvium derived from mixed
 rocks

Nellispring Series

Elevation 5,500 to 5,900 feet
Precipitation About 9 inches
Air temperature About 46 degrees
Frost-free season About 90 days
Surface rock fragments 10 percent cobbles, 55 percent
 gravel
Surface layer texture Very gravelly fine sandy loam
Drainage class Well drained
Dominant parent material Alluvium derived from volcanic
 rocks

Buttaran Series

Elevation 5,500 to 5,900 feet
Precipitation About 10 inches
Air temperature About 47 degrees
Frost-free season About 90 days
Surface rock fragments 5 percent cobbles, 20 percent
 gravel
Surface layer texture Gravelly loam
Drainage class Well drained
Dominant parent material Alluvium derived from mixed
 rocks

Dominant Present Vegetation

Fulstone Thurber needlegrass, bluegrass, sagebrush
 Nellispring Sandberg bluegrass, Thurber needlegrass,
 bottlebrush, squirreltail, sagebrush
 Buttaran Thurber needlegrass, Wyoming big sagebrush,
 bluegrass
 Inclusion 1 Thurber needlegrass, bluegrass, low
 sagebrush
 Inclusion 2 Thurber needlegrass, bluegrass, sagebrush
 Inclusion 3 Low sagebrush, rubber rabbitbrush
 Inclusion 4 None

Ecological Site

Fulstone 023XY093NV
 Nellispring 023XY047NV
 Buttaran 023XY006NV
 Inclusion 1 023XY059NV
 Inclusion 2 023XY093NV
 Inclusion 3 023XY001NV
 Inclusion 4 none

1420--Hangrock very gravelly loam, 2 to 15 percent slopes**Composition****Major Components**

Hangrock very gravelly loam 2 to 15 percent slopes--85 percent

Contrasting Inclusions

inclusion 1 Saraph very gravelly sandy loam 4 to 30 percent slopes--5 percent

inclusion 2 Vitrikerandic Haplargids Ashy, mesic sandy loam 0 to 4 percent slopes--4 percent

inclusion 3 Fullstone very gravelly sandy loam, 2 to 15 percent slopes--3 percent

inclusion 4 Tulfo very gravelly sandy loam, 15 to 50 percent slopes--3 percent

Map Unit Setting

Landscape position Fan piedmonts

Hangrock--Landform Fan remnants, geomorphic position summit

inclusion 1--Landform Alluvial fans, geomorphic position shoulder

inclusion 2--Landform Inset fans

inclusion 3--Landform Fan remnants, geomorphic position summit

inclusion 4--Landform Alluvial fans, geomorphic position backslope

Major Component Description**Hangrock Series**

Elevation 5 400 to 5 800 feet

Precipitation About 10 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface rock fragments 5 percent cobbles, 40 percent gravel

Surface layer texture Very gravelly loam

Drainage class Well drained

Dominant parent material Alluvium derived from pyroclastic and extrusive volcanic rocks

Dominant Present Vegetation

Hangrock Thurber needlegrass, Wyoming big sagebrush, bottlebrush squirreltail

inclusion 1 Thurber needlegrass, Wyoming big sagebrush, bluegrass

inclusion 2 Douglas rabbitbrush, basin big sagebrush, basin wildrye, rubber rabbitbrush

inclusion 3 Thurber needlegrass, bluegrass, sagebrush

inclusion 4 Wyoming big sagebrush, needlegrass, sagebrush

Ecological Site

Hangrock 023XY006NV

inclusion 1 023XY006NV

inclusion 2 023XY082NV

inclusion 3 023XY093NV

inclusion 4 023XY088NV

1430--Grassy can association
Composition**Major Components**

Grassy can very stony fine sandy loam 2 to 15 percent slopes--45 percent

Grassy can extremely stony fine sandy loam 0 to 8 percent slopes--40 percent

Contrasting Inclusions

inclusion 1 Ceejay very stony fine sandy loam 4 to 15 percent slopes--6 percent

inclusion 2 Bombadil stony sandy loam 0 to 4 to 15 percent slopes--4 percent

inclusion 3 Nevada very stony loam 4 to 15 percent slopes--3 percent

inclusion 4 Rock outcrop--2 percent

Map Unit Setting

Landscape position Plateaus

Grassy can--Landform Plateaus, geomorphic position summit

Grassy can--Landform Plateaus, geomorphic position summit, shape of slope convex

inclusion 1--Landform Plateaus, geomorphic position summit, position on slope lower

inclusion 2--Landform Plateaus, geomorphic position shoulder

inclusion 3--Landform Plateaus, geomorphic position shoulder, position on slope upper

inclusion 4--Landform Plateaus

Major Component Description**Grassy can Series**

Elevation 5 500 to 6 000 feet

Precipitation About 10 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface rock fragments 4 percent stones and boulders, 10 percent cobbles, 45 percent gravel

Surface layer texture Very stony fine sandy loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Grassy can Series

Elevation 5 500 to 6 000 feet

Precipitation About 10 inches

Air temperature About 46 degrees

Frost-free season About 90 days

Surface rock fragments 20 percent stones and boulders, 10 percent cobbles, 40 percent gravel

Surface layer texture Extremely stony fine sandy loam

Drainage class Well drained

Dominant parent material Residuum derived from volcanic rocks

Dominant Present Vegetation

Grassy can Thurber needlegrass, bluegrass, low sagebrush

Grassy can Bluegrass, low sagebrush

inclusion 1 Thurber needlegrass, bluegrass, sagebrush

inclusion 2 Thurber needlegrass, Wyoming big sagebrush, bluegrass

Inclusion 3 Thurber needlegrass, bluebunch wheatgrass,
low sagebrush
Inclusion 4 None

Ecological Site

Grassycan 023XY059NV
Grassycan 023XY021NV
Inclusion 1 023XY093NV
Inclusion 2 023XY006NV
Inclusion 3 023XY031NV
Inclusion 4 none

1431--Esmod-Powlow association

Composition

Major Components
Esmod very gravelly fine sandy loam, 2 to 15 percent
slopes--50 percent
Powlow very gravelly loam, 2 to 15 percent slopes--35
percent

Contrasting Inclusions

Inclusion 1 Vitrikerandic Haplocambids, Ashy, mesic,
sandy loam, 0 to 4 percent slopes--7 percent
Inclusion 2 Wetvit loam, 0 to 4 percent slopes,
occasionally flooded--3 percent
Inclusion 3 Uhaldi stony loam, 2 to 15 percent slopes--3
percent
Inclusion 4 Tunnison clay, 2 to 8 percent slopes--2
percent

Map Unit Setting

Landscape position Fan piedmonts
Esmod--Landform: Fan remnants, geomorphic position
summit
Powlow--Landform: Fan remnants, geomorphic position
shoulder
Inclusion 1--Landform: Inset fans
Inclusion 2--Landform: Stream terraces
Inclusion 3--Landform: Pediments, geomorphic position
backslope
Inclusion 4--Landform: Depressions, shape of slope
concave

Major Component Description

Esmod Series

Elevation 5,800 to 6,300 feet
Precipitation About 11 inches
Air temperature About 45 degrees
Frost-free season About 90 days
Surface rock fragments 2 percent cobbles, 50 percent
gravel
Surface layer texture Very gravelly fine sandy loam
Drainage class Well drained
Dominant parent material Alluvium derived from volcanic
rocks

Powlow Series

Elevation 5,800 to 6,300 feet
Precipitation About 11 inches
Air temperature About 45 degrees
Frost-free season About 90 days

Surface rock fragments 2 percent cobbles, 40 percent
gravel

Surface layer texture Very gravelly loam

Drainage class Well drained

Dominant parent material Alluvium derived from volcanic
rocks

Dominant Present Vegetation

Esmod: Thurber needlegrass, bluegrass, low sagebrush
Powlow: Thurber needlegrass, big sagebrush, bluebunch
wheatgrass
Inclusion 1: Basin big sagebrush, basin wildrye
Inclusion 2: Nevada bluegrass, basin big sagebrush
Inclusion 3: Thurber needlegrass, big sagebrush,
bluebunch wheatgrass
Inclusion 4: Low sagebrush, rubber rabbitbrush

Ecological Site

Esmod 023XY059NV
Powlow 023XY020NV
Inclusion 1 023XY082NV
Inclusion 2 023XY013NV
Inclusion 3 023XY020NV
Inclusion 4 023XY001NV

1440--Tusune-Hartig association

Composition

Major Components
Tusune stony loam, 30 to 50 percent slopes--50 percent
Hartig very gravelly sandy loam, 30 to 50 percent slopes--
40 percent

Contrasting Inclusions

Inclusion 1 Rubble and fragmental material--4 percent
Inclusion 2 Hartig Camp stony loam, 15 to 30 percent
slopes--3 percent
Inclusion 3 Ninemile stony loam, 15 to 30 percent slopes--
2 percent
Inclusion 4 Cumulic Haploxerolls, fine-bamy, mixed, frigid
loam, 2 to 8 percent slopes--1 percent

Map Unit Setting

Landscape position Plateaus
Tusune--Landform: Plateaus, geomorphic position
backslope, aspect north
Hartig--Landform: Plateaus, geomorphic position
backslope, aspect south
Inclusion 1--Landform: Plateaus
Inclusion 2--Landform: Plateaus, geomorphic position
shoulder
Inclusion 3--Landform: Plateaus, geomorphic position
shoulder
Inclusion 4--Landform: Inset fans

Major Component Description

Tusune Series

Elevation 6,300 to 6,900 feet
Precipitation About 14 inches
Air temperature About 44 degrees
Frost-free season About 70 days
Surface rock fragments 1 percent stones and boulders, 2
percent cobbles, 25 percent gravel

Surface layer texture Stony loam
Drainage class Well drained
Dominant parent material Residuum and colluvium
 derived from pyroclastic and extrusive volcanic rocks

Hartig Series

Elevation 6 300 to 6 900 feet
Precipitation About 14 inches
Air temperature About 42 degrees
Frost free season About 50 days
Surface rock fragments 5 percent bobbles, 40 percent
 gravel
Surface layer texture Very gravelly sandy loam
Drainage class Well drained
Dominant parent material Colluvium derived from volcanic
 rocks

Dominant Present Vegetation

Tussock Idaho fescue mountain big sagebrush
 Hartig Idaho fescue bluebunch wheatgrass mountain big
 sagebrush
 Inclusion 1 None
 Inclusion 2 Idaho fescue antelope bitterbrush bluebunch
 wheatgrass mountain big sagebrush
 Inclusion 3 Idaho fescue bluebunch wheatgrass low
 sagebrush
 Inclusion 4 Basin big sagebrush, basin wildrye

Ecological Site

Tussock 023XY054NV
 Hartig 023XY016NV
 Inclusion 1 none
 Inclusion 2 023XY015NV
 Inclusion 3 023XY017NV
 Inclusion 4 023XY009NV

1450--Emagert-Wetvit association**Composition****Major Components**

Emagert loam 0 to 2 percent slopes--70 percent
 Wetvit fine sandy loam 0 to 2 percent slopes--15 percent

Contrasting Inclusions

Inclusion 1 Weezweed loam, 0 to 2 percent slopes--7
 percent
 Inclusion 2 Vitrikerandic Haplargids Ashy, mesic fine
 sandy loam 0 to 4 percent slopes--5 percent
 Inclusion 3 Wetvit fine sandy loam, 0 to 2 percent slopes,
 occasionally flooded--3 percent

Map Unit Setting

Landscape position Intermontane basins
 Emagert--Landform Stream terraces, position on slope
 upper
 Wetvit--Landform Flood plains
 Inclusion 1--Landform Stream terraces, position on slope
 upper
 Inclusion 2--Landform Inset fans
 Inclusion 3--Landform Flood plains

Major Component Description**Emagert Series**

Elevation 5 000 to 5 700 feet
Precipitation About 12 inches
Air temperature About 46 degrees
Frost-free season About 90 days
Surface layer texture Loam
Drainage class Moderately well drained
Dominant parent material Alluvium derived from
 pyroclastic and extrusive volcanic rocks

Wetvit Series

Elevation 5 000 to 5 700 feet
Precipitation About 10 inches
Air temperature About 46 degrees
Frost-free season About 90 days
Surface rock fragments 10 percent gravel
Surface layer texture Fine sandy loam
Drainage class Very poorly drained
Dominant parent material Alluvium derived from
 pyroclastic and extrusive volcanic rocks

Dominant Present Vegetation

Emagert Basin big sagebrush, basin wildrye, rubber
 rabbitbrush
 Wetvit Baltic rush, Nebraska sedge, Nevada bluegrass
 Inclusion 1 Basin big sagebrush, basin wildrye, rubber
 rabbitbrush
 Inclusion 2 Indian ricegrass, Thurber needlegrass,
 Wyoming big sagebrush, basin wildrye
 Inclusion 3 Baltic rush, Nevada bluegrass, meadow barley

Ecological Site

Emagert 023XY009NV
 Wetvit 023XY089NV
 Inclusion 1 023XY005NV
 Inclusion 2 023XY082NV
 Inclusion 3 023XY013NV

1460--Weezweed loam, 0 to 2 percent slopes**Composition****Major Components**

Weezweed loam 0 to 2 percent slopes--85 percent

Contrasting Inclusions

Inclusion 1 Emagert loam, 0 to 2 percent slopes--7
 percent
 Inclusion 2 Vitrikerandic Haplargids, Ashy, mesic fine
 sandy loam 0 to 4 percent slopes--5 percent
 Inclusion 3 Wetvit fine sandy loam 0 to 2 percent slopes--
 3 percent

Map Unit Setting

Landscape position Intermontane basins
 Weezweed--Landform Stream terraces
 Inclusion 1--Landform Stream terraces, position on slope
 lower
 Inclusion 2--Landform Inset fans
 Inclusion 3--Landform Flood plains, position on slope
 lower

Major Component Description**Weezweed Series***Elevation* 5,000 to 5,700 feet*Precipitation* About 12 inches*Air temperature* About 46 degrees*Frost-free season* About 90 days*Surface rock fragments* 10 percent gravel*Surface layer texture* Loam*Drainage class* Moderately well drained*Dominant parent material* Alluvium derived from pyroclastic and extrusive volcanic rocks**Dominant Present Vegetation**

Weezweed Basin big sagebrush basin wildrye, rubber rabbitbrush

Inclusion 1 Basin big sagebrush basin wildrye, rubber rabbitbrush

Inclusion 2 Indian ricegrass, Thurber needlegrass

Wyoming big sagebrush, basin wildrye

Inclusion 3 Baltic rush Nebraska sedge Nevada bluegrass

Ecological Site

Weezweed 023XY005NV

Inclusion 1 023XY009NV

Inclusion 2 023XY082NV

Inclusion 3 023XY089NV

1470--Ninemile very cobbly loam, 2 to 15 percent slopes**Composition****Major Components**

Ninemile very cobbly loam, 2 to 15 percent slopes--90 percent

Contrasting Inclusions

Inclusion 1 Nevada very cobbly loam, 2 to 15 percent slopes--6 percent

Inclusion 2 Hart Camp stony loam, 4 to 15 percent slopes--3 percent

Inclusion 3 Crocker extremely stony loam, 2 to 15 percent slopes--1 percent

Map Unit Setting*Landscape position* Plateaus

Ninemile--Landform: Plateaus, geomorphic position summit

Inclusion 1--Landform: Plateaus, geomorphic position summit aspect south

Inclusion 2--Landform: Plateaus, geomorphic position backslope

Inclusion 3--Landform: Plateaus, geomorphic position shoulder

Major Component Description**Ninemile Series***Elevation* 6,100 to 6,500 feet*Precipitation* About 14 inches*Air temperature* About 44 degrees*Frost-free season* About 75 days*Surface rock fragments* 20 percent cobbles, 30 percent gravel*Surface layer texture* Very cobbly loam*Drainage class* Well drained*Dominant parent material* Residuum derived from volcanic rocks**Dominant Present Vegetation**

Ninemile Idaho fescue bluebunch wheatgrass low sagebrush

Inclusion 1 Thurber needlegrass bluebunch wheatgrass low sagebrush

Inclusion 2 Antelope bitterbrush bluebunch wheatgrass mountain big sagebrush

Inclusion 3 Idaho fescue, bluebunch wheatgrass, low sagebrush, western juniper

Ecological Site

Ninemile 023XY017NV

Inclusion 1 023XY031NV

Inclusion 2 023XY015NV

Inclusion 3 023XY095NV

9901--Playas**Composition****Major Components**

Playas silty clay 0 to 1 percent slopes--100 percent

Map Unit Setting*Landscape position* Bolsons**Major Component Description****Playas Miscellaneous Area***Elevation* 4,500 to 6,000 feet*Surface layer texture* Silty clay**Dominant Present Vegetation**

Playas None

Ecological Site

Playas none

9902--Rock outcrop-Rubble land complex, 50 to 75 percent slopes**Composition****Major Components**

Rock outcrop unweathered bedrock 50 to 75 percent slopes--45 percent

Rubble land fragmental material 50 to 75 percent slopes--40 percent

Contrasting Inclusions

Inclusion 1 Hackwood gravelly loam 30 to 50 percent slopes--6 percent

Inclusion 2 Fiddler very stony loam 30 to 50 percent slopes--5 percent

Inclusion 3 Dosie very stony loam 30 to 50 percent slopes--4 percent

Map Unit Setting

Landscape position Plateaus
 Rock outcrop--Landform Plateaus
 Rubble land--Landform Escarpments
 Inclusion 1--Landform Plateaus, geomorphic position
 backslope aspect north
 Inclusion 2--Landform Plateaus, geomorphic position
 backslope position on slope upper aspect south
 Inclusion 3--Landform Plateaus, geomorphic position
 backslope aspect east

Major Component Description

Rock outcrop Miscellaneous Area
 Elevation 4 800 to 7 000 feet
 Surface layer texture Unweathered bedrock
 Drainage class Excessively drained

Rubble land Miscellaneous Area
 Elevation 4 800 to 7 000 feet
 Surface layer texture Fragmental material
 Drainage class Excessively drained

Dominant Present Vegetation

Rock outcrop None
 Rubble land None
 Inclusion 1 Quaking aspen
 Inclusion 2 Bluebunch wheatgrass, western juniper
 Inclusion 3 Basin wildrye bluebunch wheatgrass,
 mountain big sagebrush

Ecological Site

Rubble land none
 Rock outcrop none
 Inclusion 1 023XY028NV
 Inclusion 2 023XY024NV
 Inclusion 3 023XY016NV

W--Water**Composition**

Major Components
 Water--100 percent

Map Unit Setting

Landscape position Intermontane basins

Major Component Description

Water Miscellaneous Area
 Elevation 4 400 to 6 300 feet

Dominant Present Vegetation

Water None

Ecological Site

Water none

Prime Farmland

Prime Farmland and Other Important Farmland

In this section, prime farmland and other important farmland are defined. The map units in the survey area that are considered prime farmland are listed under "Prime Farm and Map Units" at the end of this section.

Prime Farmland

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, seed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. An adequate moisture supply and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, woodland, or for other purposes. They are used for food and fiber or are available for these uses. Urban or built-up land and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary andfills, sewage treatment plants, and water-control structures.

Prime farmland soils commonly receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable, and the level of acidity or alkalinity and the content of salts and sodum are acceptable. The soils have few, if any, rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods, and they are not frequently

flooded during the growing season or are protected from flooding. Slopes range mainly from 0 to 6 percent.

Soils that have a high water table, are subject to flooding, or are droughty may qualify as prime farmland where these limitations are overcome by drainage measures, flood control, or irrigation. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information about the criteria for prime farmland can be obtained at the local office of the Natural Resources Conservation Service.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that are less productive than prime farmland.

About 2100 acres would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water were available.

The map units in the survey area that meet the requirements for prime farmland are listed under "Prime Farmland Map Units." On some soils included in the list, measures that overcome limitations are needed. The location of each map unit is shown on the detailed soil maps at the back of this publication. This list does not constitute a recommendation for a particular land use.

Unique Farmland

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil qualities, location, growing season, and moisture supply needed for the economic production of sustained high yields of a specific high-quality crop when treated and managed by acceptable farming methods. Examples of such crops are citrus, tree nuts, olives, cranberries, and vegetables.

Unique farmland is used for a specific high-value food or fiber crop, has an adequate supply of available moisture for the specific crop because of stored moisture, precipitation, or irrigation, and has a combination of soil qualities, growing season, temperature, humidity, air drainage, elevation, aspect, and other factors, such as nearness to markets, that favor the production of a specific food or fiber crop.

Lists of unique farmland are developed as needed in cooperation with conservation districts and other entities. There are presently no soils recognized as unique farmland in Nevada.

Additional Farmland of Statewide Importance

Some areas other than areas of prime and unique farmland are of statewide importance in the production of food, feed, fiber, forage, and oilseed crops. The criteria used in defining and delineating these areas are determined by the appropriate State agency or agencies. Generally, additional farmland of statewide importance includes areas that nearly meet the criteria for prime farmland and that economically produce high yields of crops when treated and managed by acceptable farming methods. Some areas can produce as high a yield as areas of prime farmland if conditions are favorable. In some states additional farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

Nevada has designated any farmland that is irrigated to be of statewide importance.

Prime Farmland Map Units

The following map units would meet the criteria for prime farmland if irrigated with an adequate and dependable water supply.

1450 Weezweed loam, 0 to 2 percent slopes

In addition, the following map units would meet the criteria for prime farmland if irrigated and reclaimed to reduce excessive salinity and sodicity.

1140 Valmy very fine sandy loam, 0 to 2 percent slopes

1230 Raglan-Mazuma association

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 4 "Classification of the Soils" in Part II of this Publication shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER Fifteen soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *-sol*. An example is Mollisol.

SUBORDER Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Xerol (*Xer* meaning *xeric* plus *ol* from *Mollisol*).

GREAT GROUP Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons, soil moisture and temperature regimes, and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Argixerol (*Argi* meaning *presence of argillic horizon* plus *xerol*, the suborder of the Mollisols that have a xeric moisture regime).

SUBGROUP Each great group has a typical subgroup. Other subgroups are intergrades or extragrades. The typical is the central concept of the great group. It is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is *Typic Argixerols*.

FAMILY Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, thickness of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup

preceded by terms that indicate soil properties. An example is *loamy-skeletal mixed frigid Typic Argixerolls*.

SERIES The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the unit in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (7). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (8). Unless otherwise stated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the unit.

The map units of each taxonomic unit are described in the section "Detailed Soil Map Units."

Aeric Epiaquents

The Aeric Epiaquents consists of very deep, very poorly drained soils that formed in mixed lacustrine sediments on lake plains. Slopes are 0 to 1 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Frigid Aeric Epiaquents

Typical pedon: Aeric Epiaquents silt loam, in map unit 1311, range land. (Colors are for dry soil unless otherwise noted.)

A—0 to 4 inches, light brownish gray (2.5Y 6/2) silt loam, very dark grayish brown (2.5Y 3/2) moist, moderate thick platy structure, hard, friable, sticky and plastic, many very fine roots, common very fine vesicular

pores, strongly alkaline (pH 8.8), abrupt wavy boundary

C1--4 to 12 inches, dark grayish brown (2.5Y 4/2) silty clay loam, very dark grayish brown (2.5Y 3/2) moist, moderate fine angular blocky structure, hard, friable, very sticky and very plastic, many very fine and fine roots, many very fine interstitial pores, strongly alkaline (pH 8.8), clear smooth boundary

C2--12 to 19 inches, grayish brown (2.5Y 5/2) silty clay, very dark grayish brown (2.5Y 3/2) moist, strong medium prismatic structure, hard, friable, very sticky and very plastic, common very fine roots, common very fine interstitial pores, few fine distinct dark yellowish brown (10YR 4/4) redox concentrations, very dark brown (7.5YR 2/2) moist, slightly effervescent, strongly alkaline (pH 8.9), clear wavy boundary

Ck1--19 to 26 inches, grayish brown (2.5Y 5/2) silty clay, dark grayish brown (2.5Y 4/2) moist, massive, hard, firm, very sticky and very plastic, few very fine roots, few very fine tubular pores, strongly effervescent, strongly alkaline (pH 9.2), clear smooth boundary

Ck2--28 to 31 inches, pale brown (10YR 6/3) silty clay loam, dark grayish brown (10YR 4/2) moist, massive, hard, friable, very sticky and very plastic, no roots observed, few very fine tubular pores, strongly effervescent, strongly alkaline (pH 8.8), clear smooth boundary

Ck3--31 to 42 inches, pale brown (10YR 6/3) silty clay, dark grayish brown (10YR 4/2) moist, moderate thin platy structure, hard, friable, very sticky and very plastic, no roots observed, few very fine tubular pores, strongly effervescent, very strongly alkaline (pH 9.2), clear smooth boundary

2C--42 to 60 inches, grayish brown (10YR 5/2) silty clay loam and silt loam, dark grayish brown (10YR 4/2) moist, massive, hard, friable, sticky and plastic, slightly effervescent, strongly alkaline (pH 9.0)

Type location: Washoe County, Nevada, at the north end of Mosquito Lake in Mosquito Valley, about 1,600 feet west and 2,000 feet south of the northeast corner of section 3, T 45 N, R 19 E (41 degrees 51 minutes 07 seconds north latitude and 119 degrees 50 minutes 01 second west longitude)

Range in Characteristics

Soil moisture: The soil is usually saturated at the surface for very long periods due to water ponding

Soil temperature: 44 to 47 degrees F

Reaction: Moderately alkaline to very strongly alkaline

Control section

Clay content--30 to 60 percent

SAR--1 to 5

Electrical conductivity--0 to 4 millimhos

A horizon

Value--6 or 7 dry, 3 or 4 moist

Chroma--2 or 3

Effervescence--Noneffervescent to slightly effervescent

C and Ck horizons

Hue--10YR 5Y or 2.5Y

Chroma--2 through 4 in the upper part and 1 through 3 in the lower part

Texture--Silty clay loam or silty clay

Effervescence--Noneffervescent to strongly effervescent

2C horizon

Texture--stratified silty clay loam and silt loam with strata of very fine sandy loam

Ashcamp Series

The Ashcamp series consists of shallow and very shallow well drained soils formed in resediment and colluvium from andesitic tuff and pyroclastic rocks. The Ashcamp soils are on plateaus. Slopes are 2 to 15 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy mesic shallow Vitrictorrandic Argixerolls

Typical pedon: Ashcamp sandy loam, in map unit 1164 rangeland (Colors are for dry soil unless otherwise noted)

A--0 to 3 inches, grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist, weak fine subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine tubular and few very fine interstitial pores, 15 percent pebbles, neutral (pH 7.0), clear smooth boundary

Bt--3 to 7 inches, grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist, moderate fine and medium subangular blocky structure, hard, very friable, slightly sticky and slightly plastic, common very fine and fine roots, many very fine tubular pores, common thin clay films on faces of peds and lining pores, 10 percent pebbles, neutral (pH 7.0), abrupt wavy boundary

Cr--7 to 23 inches, very pale brown (10YR 7/3) soft weathered andesitic tuff, brown (10YR 5/3) moist, breaks into 2 to 6 centimeter thick plates, many roots and some soil in fractures, many thin glass coats in matrix

Type location: Washoe County, Nevada, About 1,600 feet south and 1,600 feet west of the northeast corner of section 1, T 42 N, R 23 E (41 degrees 35 minutes, 10 seconds north latitude and 119 degrees 19 minutes, 34 seconds west longitude)

Range in Characteristics

Soil moisture: Moist in winter and spring, dry from July through October

Soil temperature: 47 to 51 degrees F

Depth to bedrock: 7 to 14 inches

Thickness of mollic: 7 to 14 inches

Mineralogy: 35 to 60 percent glass in the very fine and fine sand size throughout

Control section

Clay content--12 to 18 percent
 Rock fragments--Less than 15 percent pebbles (tuff fragments)

A horizon

Value--2 or 3 moist
 Chroma--2 or 3

Bt horizon

Hue--10YR or 7.5YR
 Value--2 or 3 moist
 Chroma--2 or 3
 Structure--Angular blocky or subangular blocky
 Rock fragments--Less than 15 percent (tuff fragments)
 Consistence--Slightly hard or hard dry
 Other features--Many roots are present within bedrock fractures

Bi2--19 to 24 inches, light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist, moderate medium and coarse angular blocky structure, very hard, very friable, sticky plastic, common very fine roots, common very fine tubular pores, common thin and few moderately thick clay films on peds and lining pores, 30 percent pebbles, slightly alkaline pH 4, gradual smooth boundary
 Cr--24 to 60 inches, very pale brown (10YR 7/3), weathered andesitic tuff, brown (10YR 5/3) moist, dgs with difficulty, hard, firm, few thin clay films bridging mineral grains near upper boundary, few thin silica coats appearing as glassy luster

Type location: Washoe County Nevada in an unsectioned area, about 1 900 feet south and 2 200 feet east of the projected northwest corner of section 5 T 42 N, R 19 E (41 degrees 35 minutes 32 seconds north latitude and 119 degrees 52 minutes 45 seconds west longitude)

Ashdos Series

The Ashdos series consists of moderately deep, well drained soils formed in residuum and colluvium of andesitic tuff and pyroclastic rocks. The Ashdos soils are on plateaus, mountains and hills. Slopes are 4 to 50 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 44 degrees F.

Taxonomic class: Ashy, frigid Vitricollandic Argixerolls

Typical pedon: Ashdos very gravelly fine sandy loam, in map unit 1250 rangeland (Colors are for dry soil unless otherwise noted.)

- A1--0 to 2 inches, light brownish gray (10YR 6/2) very gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist, moderate very fine subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine interstia, pores, 40 percent pebbles, neutral (pH 6.8), clear wavy boundary
- A2--2 to 7 inches, brown (10YR 5/3) gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist, moderate fine and medium subangular blocky structure, slightly hard, very friable, slightly sticky, slightly plastic, many very fine and common fine roots, common very fine tubular pores, 20 percent pebbles, neutral (pH 7.0), clear wavy boundary
- A3--7 to 12 inches, brown (10YR 5/3) gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist, strong fine and medium subangular blocky structure, hard, very friable, slightly sticky, slightly plastic, common very fine and fine roots, many very fine and common fine tubular pores, 20 percent pebbles, neutral (pH 7.2), clear wavy boundary
- Bi1--12 to 19 inches, light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark brown (10YR 4/3) moist, strong fine and medium angular blocky structure, very hard, very friable, sticky plastic, common very fine, few fine roots, many very fine tubular pores, common thin and few moderately thick clay films on peds and lining pores, 20 percent pebbles, neutral (pH 7.2), gradual smooth boundary

Range in Characteristics

Soil moisture: moist in winter and spring, dry from July through October
Soil temperature: 45 to 47 degrees F
Depth to bedrock: 20 to 40 inches
Thickness of mollic: 8 to 16 inches
Mineralogy: 35 to 60 percent glass in the very fine and fine sand size throughout
Reaction: neutral or slightly alkaline
Control section
 Clay content--18 to 25 percent
 Rock fragments--15 to 30 percent when mixed, mainly pebbles

A horizons

Value--5 or 6 dry, 2 or 3 moist
 Chroma--2 or 3

Bt horizons

Value--5 or 6 dry, 3 or 4 moist
 Chroma--3 or 4
 Structure--Angular blocky or subangular blocky

Ashone Series

The Ashone series consists of moderately deep, well drained soils formed in residuum and colluvium from andesitic tuff and pyroclastic rocks. The Ashone soils are on plateaus, mountains, and hills. Slopes are 4 to 50 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy, mesic Vitricollandic Argixerolls

Typical pedon: Ashone very gravelly fine sandy loam, in map unit 1250 rangeland (Colors are for dry soil unless otherwise noted.)

- A1--0 to 2 inches, light brownish gray (10YR 6/2) very gravelly fine sandy loam, very dark grayish brown

- (10YR 3/2) moist moderate thin and medium platy structure slightly hard very friable, nonsticky and nonplastic, many very fine roots, many very fine interstitial and vesicular pores, 50 percent pebbles slightly alkaline (pH 7.6), clear wavy boundary
- A2--2 to 8 inches brown (10YR 5/3) gravelly fine sandy loam very dark grayish brown (10YR 3/2) moist moderate very fine and fine subangular blocky structure slightly hard, very friable, slightly sticky slightly plastic, common very fine and fine, few medium roots, many very fine tubular pores, 20 percent pebbles slightly alkaline (pH 7.6), clear wavy boundary
- Bt1--8 to 12 inches brown (10YR 5/3) gravelly sandy clay loam dark brown (10YR 3/3) moist strong fine and medium angular blocky structure very hard very friable sticky plastic, common very fine, fine and medium roots, common very fine tubular pores common thin and few moderately thick clay films on ped faces and lining pores, 20 percent pebbles, slightly alkaline (pH 7.6), clear wavy boundary
- Bt2--12 to 22 inches light yellowish brown (10YR 6/4) gravelly sandy clay loam dark yellowish brown (10YR 4/4) moist moderate medium and coarse angular blocky structure very hard very friable, sticky plastic few very fine and few fine roots, few very fine tubular pores, common thin and few moderately thick clay films on ped faces and lining pores, 30 percent pebbles slightly alkaline (pH 7.6), gradual smooth boundary
- Cr--22 to 60 inches very pale brown (10YR 7/3) weathered andesitic tuff brown (10YR 5/3) moist, digs with difficulty hard, firm, few very fine and fine roots in pockets

Type location: Washoe County, Nevada in an unsectioned area about 2,800 feet east and 3,200 feet south of the projected northwest corner of section 5, T 42 N., R 19 E. (41 degrees, 35 minutes, 19 seconds north latitude and 119 degrees, 52 minutes, 37 seconds west longitude)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry from July through October

Soil temperature: 47 to 51 degrees F

Depth to bedrock: 20 to 40 inches

Thickness of mollic: 8 to 16 inches

Mineralogy: 35 to 60 percent glass in the very fine and fine sand size throughout

Reaction: Neutral or slightly alkaline

Control section

Clay content--22 to 30 percent

Rock fragments--15 to 30 percent, when mixed mainly pebbles

A horizons

Value--5 or 6 dry, 2 or 3 moist

Chroma--2 or 3

Bt horizons

Value--5 or 6 dry, 3 or 4 moist

Chroma--2 through 4

Structure--Angular blocky or subangular blocky

Ashtre Series

The Ashtre series consists of moderately deep, well drained soils that formed in residuum and colluvium of andesitic tuff and pyroclastic rocks. The Ashtre soils are on plateau shoulder slopes and side slopes. Slopes are 4 to 50 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 44 degrees F.

Taxonomic class: Ashy, frigid Vitric Torrendic Argixerols

Typical pedon: Ashtre very gravelly loam, in map unit 1251, range land (Colors are for dry soil unless otherwise noted)

- A1--0 to 2 inches pale brown (10YR 6/3) very gravelly loam dark brown (10YR 3/3) moist moderate thin platy structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine roots, many very fine vesicular pores, 2 percent cobbles, 40 percent pebbles slightly acid (pH 6.4), clear wavy boundary
- A2--2 to 7 inches brown (10YR 5/3) loam dark brown (10YR 3/3) moist moderate fine subangular blocky structure, hard, very friable, slightly sticky and slightly plastic, many very fine and common fine roots, many very fine tubular pores, 10 percent pebbles, 1 percent cobbles, neutral (pH 6.6), clear wavy boundary
- Bt1--7 to 11 inches brown (10YR 5/3) loam dark brown (10YR 3/3) moist moderate fine and medium subangular blocky structure, hard, very friable, slightly sticky and slightly plastic, many very fine, common fine and few medium roots, common very fine and few fine tubular pores, common thin clay films on faces of ped faces and lining pores, 10 percent pebbles, neutral (pH 6.8), clear wavy boundary
- Bt2--11 to 17 inches light yellowish brown (10YR 6/4) clay loam dark brown (10YR 4/3) moist strong medium subangular blocky structure, very hard, very friable, sticky and plastic, common very fine and few fine and medium roots, many very fine tubular pores, common thin and moderately thick clay films on faces of ped faces lining pores and bridging mineral grains, 10 percent pebbles, 1 percent cobbles, neutral (pH 6.8), clear wavy boundary
- Bt3--17 to 26 inches light brown (7.5YR 6/4) clay loam strong brown (7.5YR 4/6) moist moderate medium and coarse subangular blocky structure, very hard, friable, sticky and plastic, common very fine and few fine roots, many very fine and common fine tubular pores, common thin and few moderately thick clay films on faces of ped faces lining pores and bridging mineral grains, 10 percent pebbles, 3 percent cobbles, neutral (pH 7.0), abrupt wavy boundary
- Cr--26 to 60 inches pink (7.5YR 7/4) soft weathered andesitic tuff strong brown (7.5YR 5/6) moist, can be dug with difficulty hard, firm, thin glass coatings of ash over bedrock

Type location: Washoe County, Nevada, in Little Basin in an unsectioned area, T 43 N., R 20 E. (41 degrees, 40 minutes, 44 seconds north latitude and 119 degrees, 43 minutes, 27 seconds west longitude)

Range in Characteristics:

Soil moisture Moist in winter and spring dry from July through October

Soil temperature 45 to 47 degrees F

Depth to bedrock 20 to 40 inches

Mollic epipedon 10 to 15 inches

Mineralogy 35 to 60 percent glass in the whole sand fraction throughout

Reaction Neutral or slightly acid

Control section

Clay content--27 to 35 percent when mixed

Rock fragments--5 to 15 percent pebbles when mixed

A horizons

Value--5 or 6 dry 2 or 3 moist Dry value of 6 is only in the surface 3 inches The surface 7 inches when mixed has a dry value of less than 5.5

Chroma--2 or 3

Bt horizons

Hue--10YR or 7.5YR

Value--5 or 6 dry 3 or 4 moist

Chroma--3 through 8

Clay content--20 to 25 percent in the Bt1 27 to 35 percent in the lower Bt horizons

Structure--Angular blocky or subangular blocky

Consistence--Hard or very hard dry, very friable or friable moist

Rock fragments--5 to 15 percent, mainly pebbles

Other features--The bedrock is covered with a thin glass coating of ash over bedrock

faces of peds, 1 percent stones, 5 percent cobbles, 40 percent pebbles, neutral (pH 6.8) abrupt wavy boundary

Cr 15 to 19 inches, soft volcanic rock

Type location: Washoe County Nevada about 0.25 miles northeast of Barrel Springs road about 1100 feet west and 1700 feet south of the northeast corner of section 33 T 46 N R 19 E (41 degrees 52 minutes 02 seconds north latitude and 119 degrees 51 minutes 07 seconds west longitude)

Range in Characteristics.

Soil temperature 40 to 42 degrees F

Average summer soil temperature 54 to 59 degrees F

Mollic epipedon thickness 7 to 15 inches

Depth to paralithic contact 14 to 20 inches

Control section

Clay content--12 to 18 percent

Rock fragments--40 to 80 percent

A horizon:

Value--3 through 5 dry 2 or 3 moist

Chroma--2 or 3

Bt horizon

Value--4 or 5 dry 3 or 4 moist

Chroma--2 through 4

Clay content--12 to 18 percent

Consistence--Very friable or friable slightly sticky or sticky slightly plastic or plastic

Badgercamp Series

The Badgercamp series consists of shallow well drained soils that formed in residuum from soft tuffaceous bedrock. The Badgercamp soils are on summits and shoulders of plateaus. Slopes are 4 to 70 percent. The mean annual precipitation is about 18 inches and the mean annual temperature is about 40 degrees F.

Taxonomic class: Loamy-skeletal, mixed, shallow Argic Cryoborers

Typical pedon: Badgercamp bouldery loam in map unit 1358, rangeland (Colors are for dry soil unless otherwise noted). The soil surface is covered with 2 percent boulders, 2 percent cobbles, and 10 percent pebbles.

A1--0 to 5 inches, dark grayish brown (10YR 4/2) bouldery loam, very dark brown (10YR 2/2) moist, weak very fine subangular blocky structure, soft, very friable, slightly sticky and slightly plastic, common very fine roots, many very fine tubular pores, 2 percent boulders, 1 percent cobbles, 5 percent pebbles, neutral (pH 6.8), clear smooth boundary.

Bt--5 to 15 inches, dark grayish brown (10YR 4/2) very gravelly loam, dark brown (10YR 3/3) moist, weak fine subangular blocky structure, slightly hard, friable, slightly sticky and slightly plastic, few very fine roots, many very fine tubular pores, few thin clay films on

Bearbutte Series

The Bearbutte series consists of deep, well drained soils that formed in alluvium and colluvium from tuffaceous rocks. The Bearbutte soils are on side slopes of mountains, hills, and plateaus. Slopes are 4 to 15 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 43 degrees F.

Taxonomic class: Coarse-loamy, mixed, frigid Pachic Argixerolls

Typical pedon: Bearbutte fine sandy loam in map unit 1020, rangeland (Colors are for dry soil unless otherwise noted).

A1 1 to 2 inches, dark grayish brown (10YR 4/2) fine sandy loam, very dark brown (10YR 2/2) moist, weak very fine subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine tubular pores, 10 percent pebbles, neutral (pH 6.6), clear smooth boundary.

A2 2 to 9 inches, dark grayish brown (10YR 4/2) fine sandy loam, very dark brown (10YR 2/2) moist, weak very fine and fine subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine tubular pores, 10 percent pebbles, neutral (pH 6.8), clear smooth boundary.

Bt1 9 to 19 inches, brown (10YR 4/3) gravelly sandy loam, dark brown (10YR 3/3) moist, weak medium

- subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine fine and medium roots, many very fine tubular pores, few thin clay films on faces of peds, 20 percent pebbles, neutral (pH 6.8), abrupt smooth boundary
- Bt2--19 to 24 inches, dark grayish brown (10YR 4/2), gravelly sandy loam, dark brown (10YR 3/3) moist, weak medium subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, many very fine fine and medium roots, many very fine and fine tubular pores, few thin clay films on faces of peds and bridging mineral grains, 30 percent pebbles, neutral (pH 6.8), clear smooth boundary
- C1--24 to 40 inches, brown (10YR 5/3), gravelly sandy loam, dark brown (10YR 4/3) moist, massive, hard, friable, slightly sticky and slightly plastic, few very fine fine and medium roots, many very fine tubular pores, 10 percent pebbles, 5 percent cobbles, neutral (pH 7.0), clear smooth boundary
- C2--40 to 53 inches, yellowish brown (10YR 5/4), gravelly sandy loam, dark yellowish brown (10YR 4/4) moist, massive, slightly hard, very friable, slightly sticky, and slightly plastic, few very fine roots, many very fine tubular pores, 10 percent pebbles, 5 percent cobbles, neutral (pH 7.0), clear wavy boundary
- Cr--53 to 57 inches, soft weathered tuff

Type location: Washoe County, Nevada, approximately 0.26 miles north of Forty Nine Summit in an unsectioned area T 42 N, R 18 E (41 degrees 35 minutes, 43 seconds north latitude and 119 degrees 53 minutes, 12 seconds west longitude)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry from late June through October

Soil temperature: 42 to 45 degrees

Mollic epipedon thickness: 20 to 40 inches

Depth to paralithic contact: 40 to 60 inches

Control section:

- Clay content--10 to 18 percent
- Rock fragments--Averages 5 to 30 percent

A horizon:

Value--4 or 5 dry, 2 or 3 moist

Chroma--2 or 3

Bt horizons:

Chroma--2 or 3

Texture--Sandy loam or loam

Clay content--10 to 18 percent

Rock fragments--Averages 5 to 30 percent, mostly pebbles

Structure--Weak, fine and medium subangular blocky

Organic matter content--3 to 5 percent

C horizons:

Value--4 or 5 dry, 3 or 4 moist

Chroma--2 through 4

Clay content--3 to 15 percent

Rock fragments--Averages 15 to 30 percent

Bidrim Series

Bidrim series are shallow, well drained soils that formed in residuum from basalt, andesite and tuff. The Bidrim soils are on plateau rims. Slopes are 2 to 15 percent. The mean annual precipitation is about 12 inches and the mean annual air temperature is about 45 degrees F.

Taxonomic class: Clayey montmorillonitic mesic lithic Argixerols

Typical pedon: Bidrim extremely stony loam, in map unit 1165, wood and (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 15 percent stones and boulders, 20 percent cobbles, and 20 percent pebbles.

A1--0 to 1 inch, very dark brown (10YR 2/2), extremely stony loam, black (10YR 2/1) moist, moderate very fine granular structure, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine interstitial pores, 15 percent stones, 20 percent cobbles, 20 percent pebbles, neutral (pH 6.8), clear wavy boundary.

A2--1 to 3 inches, dark grayish brown (10YR 4/2), very stony loam, very dark brown (10YR 2/2) moist, moderate very fine subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine interstitial pores, 15 percent stones, 20 percent cobbles, 20 percent pebbles, neutral (pH 7.0), clear wavy boundary.

Bt--3 to 8 inches, brown (7.5YR 4/2), clay loam, dark brown (7.5YR 3/2) moist, moderate fine subangular blocky structure, hard, very friable, very sticky and plastic, many very fine, common fine and few medium roots, common fine tubular pores, many moderately thick clay films on faces of peds and lining pores, vertical cracks 5 millimeters to 16 millimeters wide and 5 to 7 inches apart extend from a depth of 3 to 13 inches, 10 percent pebbles, neutral (pH 7.0), clear wavy boundary.

Btss--8 to 13 inches, brown (7.5YR 5.4), clay, dark brown (7.5YR 4/4) moist, moderate medium and coarse angular blocky structure, extremely hard, very firm, very sticky and very plastic, common very fine and few fine, medium and coarse roots, common very fine tubular pores, many moderately thick and thick clay films on faces of peds and lining pores, common slickensides, 10 percent pebbles, neutral (pH 7.0), clear smooth boundary.

R--13 to 17 inches, hard massive vesicular basalt, rounded into stone size, few fractures.

Type location: Washoe County, Nevada, 1.2 miles north of Barrel Springs road and about 400 feet east of power line road, about 200 feet west and 1,600 feet south of the northeast corner of section 11, T 46 N, R 18 E (41 degrees 55 minutes, 33 seconds north latitude and 119 degrees, 55 minutes, 35 seconds west longitude)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry from July through October

Soil temperature: 47 to 51 degrees F

Thickness of mollis: 7 to 11 inches and includes all or part of the argillic horizon

Depth to bedrock: 10 to 14 inches

Control section:

Clay content--38 to 45 percent when mixed

A horizons:

Value--2 through 4 dry, 2 or 3 moist

Chroma--1 or 2

Organic matter--6 to 8 percent in the A1 horizon and 3 to 4 percent in the A2 horizon

Bt horizon:

Hue--10YR or 7.5YR

Value--4 through 5 dry, 2 or 3 moist

Chroma--2 through 4

Clay content--33 to 38 percent

Rock fragments--5 to 15 percent, mainly pebbles

Other features--Vertical cracks 5 to 20 millimeters wide

Btss horizon:

Hue--10YR or 7.5YR

Value--3 or 4 moist

Chroma--2 through 4

Clay content--55 to 65 percent

Rock fragments--5 to 10 percent, mainly pebbles

Bieber Series

The Bieber series consists of shallow and very shallow to hardpan, well and moderately well drained soils on fan terraces. Slopes are 2 to 15 percent. Mean annual precipitation is about 12 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Clavey montmorillonitic, mesic shallow Argiduridic Durixerolls

Typical pedon: Bieber very gravelly loam, in map unit 1186 range and (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches, grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist, moderate very thin and thin platy structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine roots, common very fine vesicular pores, 50 percent pebbles, neutral (pH 7.0), clear wavy boundary.

A2--2 to 6 inches, brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist, moderate fine and medium subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine roots, many very fine tubular pores, 25 percent pebbles, neutral (pH 7.0), clear wavy boundary.

Bt1--6 to 10 inches, brown (10YR 5/3) gravelly clay loam, dark brown (7.5YR 3/2) moist, strong fine and medium subangular blocky structure, hard, very friable, sticky and plastic, many very fine, common fine and few medium roots, many very fine tubular pores, common thin and few moderately thick clay films on faces of peds and in pores, 15 percent pebbles, neutral (pH

7.3), abrupt wavy boundary.

Bt2--10 to 13 inches, brown (7.5YR 5/4) gravelly clay, dark brown (7.5YR 3/4) moist, strong fine and medium angular blocky structure, very hard, very friable, very sticky and plastic, common very fine and fine and few medium roots, many very fine tubular pores, 15 percent pebbles, many thin and moderately thick clay films on faces of peds and in pores, slightly alkaline (pH 7.6), abrupt wavy boundary.

Bt3--13 to 16 inches, brown (7.5YR 5/4) gravelly clay, dark brown (7.5YR 3/4) moist, strong medium and coarse angular blocky structure, very hard, friable, very sticky and very plastic, common very fine and few fine roots, many very fine and few fine tubular pores, 20 percent pebbles, many thin and moderately thick clay films on faces of peds and in pores, slightly alkaline (pH 7.6), abrupt wavy boundary.

2Bqkm1--16 to 22 inches, light brown (7.5YR 6.4) continuous silica laminae capped indurated duripan, brown (7.5YR 5/4) moist, strong medium and thick platy structure, extremely hard, extremely firm, 40 percent cemented pebbles, abrupt smooth boundary.

2Bqkm2--22 to 31 inches, light brown (7.5YR 6.4) indurated and strongly cemented duripan, brown (7.5YR 5/4) moist, massive, extremely hard, very firm, few silica pendants and lime coats on undersides of rock fragments, 60 percent rounded pebbles and 10 percent cobbles, clear smooth boundary.

2Bqk--31 to 60 inches, light brown (7.5YR 6/4) stratified cobbly sandy loam to very gravelly sandy loam, brown (7.5YR 5/4) moist, hard and very hard, friable and firm, no roots observed, many very fine interstitial pores, 40 percent rounded pebbles and 10 percent cobbles, common fine lime and silica coats on undersides of rock fragments, moderately alkaline (pH 8.0).

Type location: Washoe County, Nevada, about 700 feet west and 1,900 feet north of the southeast corner section 24 T 47 N, R 18 E (41 degrees 58 minutes 44 seconds north latitude and 119 degrees 54 minutes, 29 seconds west longitude.)

Range in Characteristics.

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature: 50 to 55 degrees F.

Depth to duripan: 8 to 20 inches.

A horizons:

Hue: 10YR or 7.5YR

Value--4 or 5 dry, 2 or 3 moist

Chroma: 2 or 3

Reaction--Slightly acid or neutral

Bt1 horizon:

Hue--10YR or 7.5YR

Value--4 or 5 dry, 2 or 3 moist

Chroma--2 or 3

Clay content: 27 to 36 percent

Texture--Clay loam or gravelly clay loam

Rock fragments--10 to 35 percent pebbles

Reaction: Slightly acid or neutral

Bt2 and Bt3 horizons.

Hue--10YR or 7.5YR

Value--4 through 6 dry, 3 or 4 moist

Chroma--2 through 4

Clay content--35 to 45 percent

Rock fragments--5 to 30 percent pebbles

Structure--Prismatic or angular blocky

Reaction--Slightly acid to moderately alkaline

Bighat Series

The Bighat series consists of very deep, well drained soils that formed in mixed alluvium. The Bighat soils are on lake shore terraces and beach terraces. Slopes are 4 to 30 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Fine-loamy over sandy or sandy-skeletal mixed mesic Typic Natrargids

Typical pedon: Bighat very stony sandy loam, in map unit 1210, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is covered with 5 percent stones, 20 percent cobbles, and 15 percent pebbles.

A1--0 to 2 inches, light gray (10YR 7/2) very stony sandy loam, dark brown (10YR 4/3) moist, strong thick and very thick platy structure, hard, very friable, nonsticky and nonplastic, common very fine roots, many very fine and fine vesicular pores, 5 percent stones, 20 percent cobbles, 15 percent pebbles, violently effervescent, strongly alkaline (pH 8.6), abrupt wavy boundary.

A2--2 to 5 inches, white (10YR 8/2) stony loam, yellowish brown (10YR 5/4) moist, strong medium and thick platy structure, hard, very friable, sticky and slightly plastic, common very fine and few fine roots, many very fine vesicular pores, 10 percent stones, 5 percent cobbles, 15 percent pebbles, strongly effervescent, strongly alkaline (pH 8.6), abrupt wavy boundary.

A3--6 to 9 inches, very pale brown (10YR 7/3) and white (10YR 8/2) stony loam, dark yellowish brown (10YR 4/4) moist, strong very thick platy structure, hard, very friable, very sticky and plastic, common very fine and fine roots, many very fine tubular pores, 5 percent stones, 5 percent cobbles, 20 percent pebbles, slightly effervescent, strongly alkaline (pH 8.5), abrupt wavy boundary.

Bt1--9 to 16 inches, light yellowish brown (10YR 6/4) stony sandy clay loam, yellowish brown (10YR 5/4) moist, moderate fine and medium prismatic structure parting to strong medium and coarse angular blocky, very hard, friable, sticky and plastic, common very fine, few fine roots, few very fine tubular pores, common thin and moderately thick clay films on faces of peds and lining pores, 10 percent stones, 5 percent cobbles, 15 percent pebbles, slightly effervescent, moderately alkaline (pH 8.0), abrupt wavy boundary.

2Bqk1--16 to 31 inches, brown (10YR 5/3) extremely stony coarse sand, brown (10YR 4/3) moist, massive, hard, very friable, nonsticky and nonplastic, few very fine roots, many very fine interstitial pores, 25 percent

stones, 15 percent cobbles, 35 percent pebbles, common thin silica coats bridging mineral grains, continuous 0.5 millimeter thick lime and silica coats on underside of rock fragments, 5 percent large soft masses of lime in pockets in soil surrounding some cobbles and some 2 inch pebbles and on sides of stones, few 0.5 to 1.0 millimeter thick discontinuous silica laminae, violently effervescent, strongly alkaline (pH 8.5), gradual wavy boundary.

3Bqk2--31 to 60 inches, brown (10YR 5/3) extremely gravelly coarse sand, brown (10YR 4/3) moist, massive, slightly hard, very friable, nonsticky and nonplastic, no roots observed, many very fine interstitial pores, 5 percent stones, 10 percent cobbles, 60 percent pebbles, few thin silica coats bridging mineral grains, common 0.5 millimeter thick lime and silica coats on underside of rock fragments, 2 percent large soft masses of lime in pockets, violently effervescent, strongly alkaline (pH 9.0).

Type location: Washoe County, Nevada. About 10 miles southeast of Cedarville, California, about 3,500 feet south of Bull Creek, about 1,800 feet east and 2,400 feet north of the southwest corner of section 16, T. 41 N., R. 18 E., (41 degrees, 28 minutes, 24 seconds north latitude and 119 degrees, 58 minutes, 45 seconds west longitude.)

Range in Characteristics.

Soil moisture: Usually dry, moist for brief periods in winter, dry from late May through November. Aridic moisture regime.

Soil temperature: 47 to 53 degrees F.

Depth to sandy or sandy-skeletal layers: 15 to 27 inches.

Control section

Clay content--upper part averages 25 to 35 percent, the lower part (Bqk horizons) averages 0 to 2 percent.

Rock fragments--20 to 30 percent stones, cobbles and pebbles in the upper part, 60 to 75 percent stones, cobbles and pebbles in the lower part.

A horizons

Hue--10YR or 2.5Y

Reaction--Moderately alkaline or strongly alkaline

Bt1 horizon

Value--6 or 7 dry, 4 or 5 moist

Chroma--3 or 4

Texture--Stony clay loam or stony sandy clay loam

Reaction--Moderately alkaline or strongly alkaline

Effervescence--Slightly effervescent to violently effervescent, few fine and medium soft masses of lime are in some pedons.

SAR--13 to 45 percent

Bqk horizons:

Value--5 through 8 dry, 4 through 6 moist

Chroma--3 or 4

Reaction--Mildly alkaline or moderately alkaline

Bitner Series

The Bitner series consists of moderately deep, well drained soils that formed in residuum and colluvium from tuff breccia and pyroclastic rocks. The Bitner soils are on plateau shoulder slopes. Slopes are 4 to 30 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 45 degrees F.

Taxonomic class: Ashy mesic Vitrictorrandic Haploxerolls

Typical pedon Bitner gravelly sandy loam, in map unit 1195, rangeland, (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent pebbles, including cinders, obsidian and rhyolitic pebbles.

A1--0 to 2 inches brown (10YR 5/3) gravelly sandy loam, very dark gray sh brown (10YR 3/2) moist, weak fine subangular blocky structure, soft, very friable, nonsticky and nonplastic, few very fine roots, many very fine interstitial pores, 20 percent cinders, volcanic glass and rhyolitic pebbles, slightly acid (pH 6.1), clear wavy boundary.

A2--2 to 7 inches brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist, moderate fine subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine and fine roots, many very fine interstitial pores, 15 percent cinders and glassy vitric pyroclastic pebbles, slightly acid (pH 6.4), clear wavy boundary.

Bw--7 to 13 inches brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist, moderate coarse subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine and few fine and medium roots, many very fine tubular and interstitial pores, 15 percent cinders and glassy vitric pyroclastic pebbles, 5 percent rhyolitic pebbles, neutral (pH 7.2), clear wavy boundary.

Bq1--13 to 18 inches, yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 3/4) moist, weak coarse subangular blocky structure, slightly hard and hard, very friable, nonsticky and nonplastic, common very fine and few fine roots, many very fine interstitial and common very fine tubular pores, 20 percent cinders and glassy vitric pyroclastic pebbles, 5 percent rhyolitic pebbles, 5 percent 5 to 20 millimeter hard, firm durinodes with few fine strong brown (7.5YR 4/6) iron stains, black (10YR 2/1) moist, 15 percent hard, firm and brittle 2 to 5 centimeter nodules that slake in water, slightly alkaline (pH 7.4), clear wavy boundary.

Bq2--19 to 27 inches, yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 3/4) moist, weak medium and coarse subangular blocky structure, slightly hard and hard, very friable, nonsticky and nonplastic, few very fine roots, many very fine interstitial and common very fine tubular pores, 25 percent cinders and glassy vitric pyroclastic pebbles, 5 percent rhyolitic pebbles, 5 percent 5 to 20 millimeter hard, firm durinodes with few fine strong brown (7.5YR 4/6) iron stains, black (10YR 2/1) moist, 15 percent hard, firm and brittle 2 to 5 centimeter nodules that

slake in water, slightly alkaline (pH 7.6), abrupt wavy boundary.

Cr 27 to 35 inches, highly weathered and fractured tuff breccia with few fine roots in some fractures, many 1 to 5 millimeter glass and vitric pyroclastic pebbles in matrix, many moderately thick glass coats.

Type location. Washoe County, Nevada. On the east side of Massacre Mountain in an unsectioned area. T 42 N, R 22 E, (41 degrees, 33 minutes, 23 seconds north latitude and 119 degrees, 32 minutes, 30 seconds west longitude.)

Range in Characteristics

Soil moisture Moist in winter and spring, dry from July through October.

Soil temperature 47 to 51 degrees F.

Depth to bedrock 20 to 40 inches.

Mollic epipedon 10 to 20 inches.

Mineralogy 60 to 80 percent glass in the very fine and fine sand size throughout.

Reaction Slightly acid or neutral in the upper part, neutral or slightly alkaline in the lower part.

Control section

Clay content--12 to 18 percent.

Rock fragments--15 to 25 percent pebbles that are dominantly cinders when mixed.

A horizons

Value--5 or 6 dry, 2 or 3 moist. Dry value of 6 is only in the surface 2 inches of some pedons.

Chroma--2 or 3.

Bw horizon

Hue--10YR or 7.5YR.

Value--5 or 6 dry, 3 or 4 moist.

Chroma--3 or 4.

Bq horizons

Value--5 or 6 dry, 3 or 4 moist.

Chroma--3 or 4.

Other features--2 to 10 percent 2 to 10 centimeter durinodes. Some pedons have 1 to 2 inch thick 2C horizons immediately above the Cr that are extremely gravelly sandy loam.

Blizzard Series

The Blizzard series consists of shallow, well drained soils that formed in colluvium over residuum from basalt and tuff. Blizzard soils are on plateaus. Slopes range from 2 to 15 percent. The mean annual precipitation is about 14 inches and the annual temperature is about 43 degrees F.

Taxonomic class: Clayey montmorillonitic Argic Lithic Cryoborols.

Typical pedon: Blizzard very cobbly sticky clay loam, in

map unit 1296 rangeand. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with about 1 percent stones, 20 percent cobbles and 30 percent pebbles.

- A—0 to 2 inches, brown (7.5YR 5/2) very cobbly silty clay loam, brown (7.5YR 4/2) moist, weak fine subangular blocky structure, soft, very friable, slightly sticky and slightly plastic, few very fine, fine, and coarse roots, few very fine vesicular pores, 1 percent stones, 20 percent cobbles, 30 percent pebbles, slightly alkaline (pH 7.6), clear boundary.
- Bt1—2 to 5 inches, brown (7.5YR 5/2) silty clay, dark brown (7.5YR 3/2) moist, strong medium subangular blocky structure, very hard, friable, very sticky and very plastic, common very fine and fine roots, few very fine tubular pores, common thin clay films on faces of peds and in pores, 10 percent cobbles, slightly alkaline (pH 7.4), clear wavy boundary.
- Bt2—5 to 19 inches, brown (7.5YR 5/2) cobbly clay, brown (7.5YR 4/2) moist, strong medium angular blocky structure, extremely hard, firm, very sticky and very plastic, few very fine and fine roots, few very fine tubular pores, common thin and moderately thick clay films on faces of peds and in pores, 20 percent cobbles, slightly alkaline (pH 7.4), abrupt smooth boundary.
- R—19 to 23 inches, slightly fractured basalt.

Type location: Washoe County, Nevada, east of Coleman Valley, about 1,000 feet east and 200 feet south of the northwest corner of section 15 T. 47 N., R. 20 E., (41 degrees 59 minutes, 45 seconds north latitude and 119 degrees 43 minutes, 43 seconds west longitude.)

Range in Characteristics

Soil moisture: Dry during July to October.
Soil temperature: 43 to 47 degrees F.
Average summer soil temperature: 54 to 59 degrees F.
Depth to bedrock: 10 to 20 inches.
Thickness of mollic: 7 to 10 inches and includes part or all of the argillic.
Reaction: Neutral or slightly alkaline.
Control section:
 Clay content—46 to 60 percent.
 Rock fragments—0 to 25 percent, mainly cobbles and pebbles.

A horizon

Hue—7.5YR or 10YR
 Value—4 or 5 dry, 3 or 4 moist
 Chroma—2 or 3

Bt horizon

Value—4 or 5 dry, 3 or 4 moist
 Chroma—2 or 3
 Texture—Silty clay, cobbly clay or clay.
 Rock fragments—0 to 20 percent cobbles, 0 to 15 percent pebbles.
 Other features—Some pedons have Bk horizons below the Bt.

Boltz Series

The Boltz series consists of moderately deep, well drained soils formed in residuum and colluvium from andesitic tuff and pyroclastic rocks. The Boltz soils are on plateau, shoulder slopes and side slopes. Slopes are 4 to 30 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 44 degrees F.

Taxonomic class: Ashy, frigid Vitric Torrandic Haploxerolls

Typical pedon: Boltz gravelly sandy loam, in map unit 1278, rangeand. (Colors are for dry soil unless otherwise noted.)

- A1—0 to 3 inches, brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist, weak fine subangular blocky structure, soft, very friable, nonsticky and nonplastic, common very fine roots, many very fine interstitial pores, 10 percent cinders, 5 percent volcanic glass and rhyolitic pebbles, 1 percent cobbles, slightly acid (pH 6.4), clear wavy boundary.
- A2—3 to 11 inches, brown (7.5YR 5/2) gravelly sandy loam, dark brown (7.5YR 3/2) moist, moderate fine and medium subangular blocky structure, soft, very friable, slightly sticky and slightly plastic, many very fine common fine and few medium roots, many very fine tubular pores, 15 percent cinders and glassy vitric pyroclastic pebbles, neutral (pH 6.8), clear wavy boundary.
- Bw—11 to 20 inches, brown (7.5YR 5/4) gravelly sandy loam, dark brown (7.5YR 4/4) moist, moderate medium subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine and fine and few medium roots, many very fine and common fine tubular pores, 10 percent cinders and 5 percent glassy vitric pyroclastic pebbles, neutral (pH 6.8), clear wavy boundary.
- C—20 to 34 inches, light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist, weak coarse subangular blocky structure, slightly hard, very friable, nonsticky and nonplastic, common very fine and few fine and medium roots, many very fine interstitial and common very fine tubular pores, few thin clay films in pockets around some pebbles, 20 percent cinders and glassy vitric pyroclastic pebbles, neutral (pH 7.0), clear wavy boundary.
- Cr—34 to 60 inches, very pale brown (10YR 7/4) soft, weathered pyroclastic tuff, yellowish brown (10YR 5/4) moist, many pyroclastic pumiceous gravel size, many moderately thick glass coats, can be dug with difficulty.

Type location: Washoe County, Nevada, On the east side of Massacre Mountain in an unsectioned area, T. 42 N., R. 22 E., (41 degrees 32 minutes, 30 seconds north latitude and 119 degrees 32 minutes, 27 seconds west longitude.)

Range in Characteristics

Soil moisture: Moist in winter and spring, dry from July

through October
Soil temperature 45 to 47 degrees F
Depth to bedrock 20 to 40 inches
Mollic epipedon 10 to 16 inches
Mineralogy 60 to 80 percent glass in the very fine and fine sand size throughout
Reaction Neutral or slightly acid
Control section
 Clay content 10 to 18 percent when mixed
 Rock fragments--15 to 25 percent pebbles that are dominantly cinders when mixed

A horizons

Value--5 or 6 dry 2 or 3 moist Dry value of 6 is only in the surface 2 inches of some pedons
 Chroma--2 or 3

Bw horizon:

Hue--10YR or 7.5YR
 Value--5 or 6 dry 3 or 4 moist
 Chroma--3 or 4

C horizons

Chroma--3 or 4
 Texture--Sandy loam or loam
 Clay content--10 to 20 percent
 Glass and glass aggregates--60 to 90 percent of the fine earth fraction

Bombadil Series

The Bombadil series consists of very shallow and shallow well drained soils that formed in residuum from weathered basic igneous rock. Bombadil soils are on hills, plateaus and mountains. Slopes are 4 to 30 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy mixed mesic Lithic Xeric Haplargids

Typical pedon. Bombadil very stony loam in map unit 1060 rangeland (Colors are for dry soil unless otherwise noted). The surface is partially covered by 5 percent stones, 10 percent cobbles, 25 percent pebbles.

A--0 to 3 inches, light brownish gray (10YR 6/2) very stony loam, dark brown (10YR 4/3) moist, strong very thin and thin platy structure, slightly hard, very friable, slightly sticky and slightly plastic, very few fine roots, many fine vesicular pores, 5 percent stones, 10 percent cobbles and 25 percent pebbles, slightly alkaline (pH 7.4), abrupt smooth boundary.

Bt1--3 to 6 inches, brown (10YR 5/3) loam, dark brown (10YR 4/3) moist, strong very fine and fine subangular blocky, slightly hard, very friable, sticky and plastic, many very fine, fine, medium and coarse roots, many very fine interstitial and many very fine, fine and medium tubular pores, common thin clay films on faces of pedis and in pores, 10 percent pebbles, slightly alkaline (pH 7.6), clear wavy boundary.

Bt2--6 to 14 inches, pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist, strong fine and medium subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine, fine, medium and coarse roots, many very fine tubular pores, common thin and few moderately thick clay films on faces of pedis and in pores, 20 percent pebbles, slightly alkaline (pH 7.8), abrupt wavy boundary.

R--14 to 18 inches, hard basalt, highly fractured in the upper 4 inches with common very fine and fine roots, soil, and discontinuous silica and lime coatings in fractures.

Type location: Washoe County, Nevada, about 10 feet east of the Nevada-California state line and 50 feet south of trail, about 600 feet south and 10 feet east of the northwest corner of section 8 T 42 N R 18 E (41 degrees 34 minutes 52 seconds north latitude and 119 degrees 59 minutes 53 seconds west longitude).

Range in Characteristics:

Soil moisture Moist in winter and spring, dry in summer and early autumn.

Soil temperature 47 to 53 degrees F

Depth to bedrock 7 to 14 inches

Reaction Neutral or slightly alkaline

Control section

Percent clay--18 to 27

Rock fragments--10 to 25 percent

A horizon:

Hue--10YR 7.5YR
 Value--5 or 6 dry 3 or 4 moist
 Chroma--2 or 3

Bt1 horizon

Hue--10YR or 7.5YR
 Value--5 or 6 dry 3 through 5 moist
 Chroma--3 or 4 except 2 in the upper part of some pedons
 Texture--Loam or clay loam
 Clay content--18 to 35 percent
 Rock fragments--10 to 25 percent by average

Bt2 horizon:

Hue--10YR or 7.5YR
 Value--5 or 6 dry 4 or 5 moist
 Chroma--3 or 4
 Clay content--25 to 35 percent
 Consistence--Very friable or friable, slightly sticky or sticky, slightly plastic or plastic
 Rock fragments--10 to 20 percent by average

Boulder Lake Series

The Boulder Lake series consists of very deep, somewhat poorly drained soils that formed in clayey lacustrine sediments derived mainly from tuff, basalt, and andesite. The Boulder Lake soils are on flat interplateau basins and lake plains. Slopes are 0 to 2 percent. The mean annual

precipitation is about 14 inches and the mean annual temperature is about 43 degrees F

Taxonomic class: Fine montmorillonitic, frigid Xeric Epiaquepts

Typical pedon: Boulder Lake silty clay in map unit 1010 rangeland. (Colors are for moist soil unless otherwise noted)

A--0 to 2 inches, very dark grayish brown (10YR 3/2) silty clay, grayish brown (10YR 5/2) dry, strong very fine and fine granular structure, slightly hard, friable, very sticky and very plastic, few very fine roots, many very fine and fine interstitial pores, vertical cracks 10 to 30 millimeters wide and 3 to 6 inches apart, slightly acid (pH 6.4), abrupt smooth boundary

Bw--2 to 6 inches, dark grayish brown (10YR 4/2) silty clay, grayish brown (10YR 5/2) dry, moderate medium prismatic structure, slightly hard, friable, very sticky and very plastic, few very fine roots, many very fine and fine interstitial pores, vertical cracks 10 to 30 millimeters wide and about 3 to 6 inches apart, neutral (pH 6.6), abrupt wavy boundary

Bwss1--6 to 12 inches, dark grayish brown (10YR 4/2) clay, grayish brown (10YR 5/2) dry, moderate coarse prismatic structure parting to strong very fine and fine angular blocky, slightly hard, friable, very sticky and very plastic, many very fine, few fine and medium roots, few very fine and fine tubular pores, vertical cracks 10 to 50 millimeters wide and about 3 to 6 inches apart, few slickensides, neutral (pH 6.6), clear wavy boundary

Bwss2--12 to 29 inches, dark grayish brown (10YR 4/2) clay, light brownish gray (10YR 6/2) dry, moderate medium prismatic structure parting to strong medium and coarse angular blocky, very hard, firm, very sticky and very plastic, few very fine roots, many very fine and fine tubular pores, vertical cracks 10 to 20 millimeters wide and about 3 to 6 inches apart, common wedge-shaped aggregates tilted 30 degrees from horizontal, common slickensides, few fine and medium distinct brown (7.5YR 4/4) and very dark brown (7.5YR 2/2) iron and manganese masses on faces of peds and in pores, neutral (pH 6.8), gradual smooth boundary

Bwss3--29 to 60 inches, dark grayish brown (10YR 4/2) clay, light brownish gray (10YR 6/2) dry, weak coarse prismatic structure parting to strong medium to very coarse angular blocky, hard, friable, very sticky and very plastic, few fine and medium roots, few fine tubular pores, common slickensides, common fine distinct brown (7.5YR 4/4) and dark brown (7.5YR 3/4) iron masses on faces of peds and in pores, few fine and medium distinct very dark brown (10YR 2/2) manganese masses on faces of peds, neutral (pH 6.8)

Type location: Washoe County, Nevada, at the south end of Macy Flat, about 1,800 feet west and 1,900 feet north of the southeast corner of Sec. 32, T. 47 N., R. 21 E. (41 degrees, 57 minutes, 00 seconds north latitude and 119 degrees, 38 minutes, 30 seconds west longitude)

Range in Characteristics

Soil moisture: Ponded for less than 45 consecutive days in most years, mainly in the spring; brief ponding occurs after intensive rainfall

Soil temperature: 43 to 47 degrees F

Average summer soil temperature: 62 to 64 degrees F

Effervescence: Noncalcareous or slightly effervescent but ranges to strongly effervescent in some pedons where few to common, very fine to medium lime segregations occur below depths of 20 inches

Other features: Cracks at the surface are up to 3 inches wide and are 3 to 6 inches apart. These decrease in width as depth increases. Cracks remain open for fewer than 180 consecutive days

A horizon

Hue--10YR or 2.5Y

Value--5 or 6 dry, 3 through 5 moist

Chroma--2 or 3 moist, 1 through 3 dry

Reaction--Slightly acid to slightly alkaline

Bw and Bwss horizon

Hue--10YR or 2.5Y

Chroma--2 or 3. (Some pedons have dry chromas of 1 in the upper Bw)

Texture--Clay or silty clay; some pedons have clay loam in the immediate surface layer

Structure--Moderate or strong, medium to very coarse prismatic and very fine to very coarse angular blocky in the upper part, weak to strong, medium to very coarse prismatic and moderate or strong medium to very coarse angular in the lower subhorizons

Consistence--Very hard or extremely hard, dry, firm or very firm, moist, may be slightly hard and friable in subhorizons

Mottles--Few or common, very fine to medium, distinct or prominent, redoximorphic concentrations with reddish, yellowish and brownish colors

Reaction--Neutral to moderately alkaline

Other features--Few to many slickensides and many pressure faces. Soil is interpreted as having reduced matrix colors due to saturation

Bucklake Series

The Bucklake series consists of moderately deep, well-drained soils that formed in material weathered from basalt or andesite. Bucklake soils are on mountain back slopes and escarpments. Slopes range from 15 to 50 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 46 degrees F

Taxonomic class: Fine montmorillonitic, mesic Andic Argixerolls

Typical pedon: Bucklake very stony loam in map unit 1081, rangeland. (Colors are for dry soil unless otherwise noted). The surface is covered with 5 percent stones, 20 percent cobbles, and 20 percent gravel.

A1--0 to 3 inches, brown (7.5YR 5/2) very stony loam, dark brown (7.5YR 3/2) moist, weak medium and thick platy structure, hard, very friable, sticky and plastic, many very fine and fine, few coarse roots, many very fine tubular pores, 5 percent stones, 20 percent cobbles, 20 percent pebbles, neutral (pH 7.0), clear wavy boundary

A2--3 to 8 inches, brown (7.5YR 5/2) very stony loam, dark brown (7.5YR 3/2) moist, weak medium and coarse subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine and fine, few coarse roots, many very fine tubular pores, 10 percent stones, 15 percent cobbles and 20 percent pebbles, neutral (pH 7.0), clear wavy boundary

Bt1--8 to 12 inches, brown (7.5YR 5/2) gravelly clay loam, dark brown (7.5YR 3/2) moist, moderate medium and coarse subangular blocky structure, hard, very friable, sticky and plastic, common very fine and fine roots, many very fine tubular pores, common thin and moderately thick clay films on ped, 25 percent pebbles, slightly alkaline (pH 7.5), clear wavy boundary

Bt2--12 to 18 inches, brown (7.5YR 5/4) gravelly clay, dark brown (7.5YR 3/4) moist, moderate medium and coarse subangular blocky structure, hard, friable, very sticky and very plastic, common very fine roots, many very fine tubular pores, many thin and moderately thick clay films on ped, 25 percent pebbles, slightly alkaline (pH 7.5), clear wavy boundary

Bt3--18 to 24 inches, brown (7.5YR 5/4) gravelly clay, dark reddish brown (5YR 3/4) moist, weak medium and coarse angular blocky structure, hard, friable, very sticky and very plastic, common very fine roots, many very fine tubular pores, many thin and moderately thick clay films on ped, 25 percent pebbles, slightly alkaline (pH 7.5), clear wavy boundary

R--24 to 28 inches, hard basalt with some fractures

Type location: Washoe County, Nevada, about 2,500 feet south and 1,700 feet west of the northeast corner of section 15, T.43 N., R.18 E. (41 degrees 38 minutes, 53 seconds north latitude and 119 degrees 57 minutes, 02 seconds west longitude)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall

Soil temperature: 47 to 52 degrees F

Depth to bedrock: 20 to 40 inches

Thickness of mollic: 10 to 20 inches and includes part of the Bt horizons

A horizons

Hue--10YR or 7.5YR

Value--4 or 5 dry, 2 or 3 moist

Chroma--2 or 3

Bt horizons

Hue--10YR or 7.5YR dry, 10YR, 7.5YR or 5YR moist

Value--3 or 4 moist

Chroma--2 through 4, moist chroma of 4 is only in Bt2 or Bt3 horizons

Texture: Clay loam in the upper part, clay or clay loam in the lower part

Clay content: 27 to 35 percent in the upper part, 35 to 50 percent in the lower part

Rock fragments: 5 to 30 percent, mainly pebbles

Reaction: Neutral or slightly alkaline

Buffaran Series

The Buffaran series consists of shallow to a duripan, well drained soils that formed in alluvium derived from mixed rock sources. Buffaran soils are on fan piedmonts, mountain valley fans, and bajanias. Slopes are 2 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Clayey montmorillonitic mesic shallow Xeric Argidurids

Typical pedon: Buffaran very stony loam, in map unit 1110, range land. (Colors are for dry soil unless otherwise noted.) The soil surface is covered by approximately 20 percent pebbles, 15 percent cobbles and 10 percent stones.

A--0 to 2 inches, light brownish gray (10YR 6/2) very stony loam, very dark grayish brown (10YR 3/2) moist, weak fine subangular blocky structure, soft, very friable, slightly sticky and nonplastic, common very fine roots, 10 percent stones, 15 percent cobbles, 20 percent pebbles, neutral (pH 7.3), clear wavy boundary

Bt1--2 to 6 inches, brown (10YR 5/3) gravelly clay loam, very dark grayish brown (10YR 3/2) moist, moderate fine subangular blocky structure, slightly hard, very friable, sticky and plastic, few very fine and fine roots, common very fine tubular pores, few thin clay films bridging sand grains, 15 percent pebbles, neutral (pH 7.3), clear wavy boundary

Bt2--6 to 10 inches, pale brown (10YR 6/3) clay loam, dark brown (10YR 4/3) moist, moderate fine and medium subangular blocky structure, hard, very friable, sticky and plastic, common very fine and fine roots, common very fine tubular pores, common thin clay films on faces of ped and bridging sand grains, 10 percent pebbles, neutral (pH 7.3), clear wavy boundary

Bt3--10 to 14 inches, light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist, moderate very fine and fine angular blocky structure, slightly hard, very friable, sticky and plastic, common very fine and fine roots, common very fine tubular pores, many moderately thick clay films on faces of ped, 15 percent pebbles, neutral (pH 7.3), clear wavy boundary

Bq--14 to 16 inches, light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist, massive, slightly hard, very friable, sticky and plastic, few very fine and fine roots, common very fine tubular pores, 25 percent 1 to 4 centimeter pieces of strongly silica-cemented duripan, slightly alkaline (pH 7.5), abrupt wavy boundary

Bqm--16 to 27 inches, indurated duripan, massive, extremely hard, extremely firm, alternate strong

cementation and indurated silica laminae, 60 percent pebbles

Bqkm--27 to 60 inches, light gray (10YR 7/2) strongly cemented durpan consisting of many thin laminae with weakly cemented material between the laminae, 30 percent pebbles, 30 percent cobbles, violently effervescent, moderately alkaline (pH 8.2)

Type location. Washoe County, Nevada, northwest of Rye Creek Reservoir, about 900 feet west and 1,000 feet north of the southeast corner of section 36, T. 47 N., R. 21 E. (41 degrees, 56 minutes, 51 seconds north latitude and 119 degrees, 33 minutes, 38 seconds west longitude)

Range in Characteristics

Soil moisture. Usually dry, moist in winter and spring, dry in summer and fall

Soil temperature. 47 to 52 degrees F

Depth to durpan. 14 to 20 inches

A horizon

Hue--10YR or 7.5YR

Value--5 or 6 dry, 3 or 4 moist, (after mixing 7 inches value greater than 5.5 dry)

Chroma--2 or 3

Reaction--Neutral to moderately alkaline

Bt horizons

Hue--10YR or 7.5YR

Value--5 or 6 dry, 3 through 5 moist

Chroma--2 through 6

Texture--Clay or clay loam (35 to 50 percent clay)

Structure--Subangular blocky or granular

Consistence--Slightly hard or hard dry, very friable or friable moist, slightly plastic or plastic wet

Rock fragments--5 to 40 percent, mainly pebbles

Reaction--Neutral to moderately alkaline

Bq horizon

Texture--Loam or clay loam

Consistence--Slightly hard or hard dry, very friable or friable or firm moist, slightly sticky to sticky and slightly plastic to plastic wet

Rock fragments--20 to 40 percent strongly cemented durpan fragments

Reaction--Neutral to moderately alkaline

Effervescence--Noneffervescent to strongly effervescent

Ceejay Series

The Ceejay series consists of shallow, well drained soils that formed in residuum weathered from basalt. Ceejay soils are on plateaus. Slopes are 4 to 50 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 49 degrees F.

Taxonomic class: Clayey montmorillonitic mesic Lithic Xeric Haplargids

Typical pedon: Ceejay stony loam, in map unit 1400 rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is covered with approximately 2 percent stones, 10 percent cobbles, and 40 percent pebbles.

A1--0 to 4 inches, light brownish gray (10YR 6/2) stony loam, dark grayish brown (10YR 4/2) moist, moderate medium platy structure, slightly hard, very friable, nonsticky and nonplastic, few very fine and fine roots, many very fine and fine vesicular and common very fine tubular pores, 2 percent stones, 5 percent cobbles, 35 percent pebbles, neutral (pH 6.8), clear smooth boundary.

A2--4 to 6 inches, pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist, moderate medium platy structure, slightly hard, very friable, slightly sticky and nonplastic, common very fine and fine roots, common fine tubular and interstitial pores, 15 percent pebbles, neutral (pH 7.0), abrupt wavy boundary.

Bt1--6 to 10 inches, yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist, moderate fine prismatic structure parting to strong angular blocky, hard, friable, very sticky and very plastic, few very fine and fine roots, common very fine tubular pores, many moderately thick clay films on faces of peds, 5 percent cobbles, 20 percent pebbles, neutral (pH 7.0), clear smooth boundary.

Bt2--10 to 15 inches, brown (7.5YR 5/4) gravelly clay, dark brown (7.5YR 4.4) moist, moderate fine prismatic structure parting to moderate fine angular blocky, hard, friable, very sticky and very plastic, few very fine and fine roots, common very fine tubular pores, common moderately thick clay films on faces of peds, 15 percent pebbles, 5 percent cobbles, neutral (pH 7.0), abrupt irregular boundary.

R--15 to 19 inches, hard basalt, fractured in some areas. Thin lime and silica coatings in rock fractures.

Type location: Washoe County, Nevada, in an unsectioned area, T. 41 N., R. 23 E. (41 degrees, 25 minutes, 58 seconds north latitude and 119 degrees, 21 minutes, 05 seconds west longitude)

Range in Characteristics

Soil moisture. Usually dry, dry in the summer and fall, moist in winter and spring.

Soil temperature. Averages 54 to 59 degrees F

Depth to bedrock. 14 to 20 inches

Reaction. Neutral to moderately alkaline

Control section

Clay content--35 to 45 percent

Rock fragments--Averages 15 to 30 percent, mainly pebbles and cobbles

A horizon

Value--5 through 7 dry, 4 or 5 moist

Chroma--2 or 3

Bt horizons

Hue--10YR or 7.5YR

Value--4 or 5 moist or dry

Chroma--3 or 4 moist or dry
 Texture--Clay, silt, or clay
 Clay content--35 to 45 percent
 Rock fragments--Averages 15 to 30 percent, mainly pebbles and cobbles
 Structure--Prismatic parting to platy or angular blocky
 Consistence--Slightly hard to extremely hard, sticky or very sticky and plastic or very plastic
 Other features--Lime coatings may be absent on bedrock in some pedons

Chime Series

The Chime series are moderately deep, well drained soils that formed in residuum from tuffaceous sandstone. Chime soils are on side slopes of upland plateaus and fan piedmont remnants with a rock core. Slopes are 2 to 15 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Fine-loamy mixed, mesic Durinodic Xeric Hapargids

Typical pedon: Chime gravelly loam, in map unit 1235, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 3 inches, pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist, moderate thin platy structure, slightly hard, very friable, slightly sticky and slightly plastic, few very fine roots, common fine and very fine vesicular pores, 20 percent pebbles, slightly alkaline (pH 7.6), abrupt smooth boundary.

A2--3 to 10 inches, light gray (10YR 7/2) gravelly loam, brown (10YR 4/3) moist, moderate medium platy structure, hard, very friable, slightly sticky and slightly plastic, few medium, fine, and very fine roots, few fine and very fine vesicular pores, 20 percent pebbles, slightly alkaline (pH 7.6), abrupt smooth boundary.

Bt--7 to 16 inches, pale brown (10YR 6/3) clay loam, dark yellowish brown (10YR 4/4) moist, weak medium and coarse subangular blocky structure, hard, firm, sticky and plastic, few fine and very fine roots, common very fine tubular pores, common moderately thick clay films on faces of peds and lining pores, 10 percent pebbles, slightly alkaline (pH 7.8), clear wavy boundary.

Bq--16 to 25 inches, very pale brown (10YR 8/3) gravelly loam, dark yellowish brown (10YR 4/4) moist, weak fine and medium subangular blocky structure, hard, firm, sticky and plastic, few fine and very fine roots, few fine tubular pores, 60 percent discontinuous silica cementation, 20 percent pebbles, continuous brittle matrix, slightly alkaline (pH 7.8), abrupt wavy boundary.

Cr--25 to 29 inches, weathered tuffaceous sandstone.

Type location: Washoe County, Nevada, about 2,300 feet east and 1,700 feet south of the northwest corner of section 28 T 42 N R 18 E (41 degrees, 32 minutes, 04 seconds north latitude and 119 degrees, 58 minutes, 39 seconds west longitude.)

Range in Characteristics

Soil moisture: Usually dry, moist in winter and spring, dry mid June through October.

Soil temperature: 47 to 52 degrees F.

Depth to paralithic contact: 20 to 30 inches.

Depth to Bq horizon: 14 to 20 inches.

Control section:

Clay content--27 to 35 percent

Rock fragments--Up to 20 percent, mainly pebbles

A horizons

Hue--10YR or 2.5Y

Value--6 or 7 dry, 3 or 4 moist

Chroma--2 or 3

Bt horizon

Hue--10YR or 2.5Y

Value--5 through 7 dry

Chroma--3 or 4

Structure--Moderate or strong, fine to coarse angular or subangular blocky

Total thickness--9 to 12 inches

Bq horizon

Hue--10YR or 2.5Y

Value--6 through 8 dry, 4 or 5 moist

Texture--Loam, gravelly loam, clay, silt, gravelly clay, loam

Rock fragments--5 to 20 percent, mainly pebbles

Cementation--Continuous brittle matrix and some pedons contain 20 to 60 percent discontinuous silica cementation.

Corral Series

The Corral series consists of shallow, well drained soils that formed in material weathered from tuffaceous sandstone or diatomaceous earth. Corral soils are on terrace pediments or plateau escarpments. Slopes are 4 to 50 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy mixed, mesic shallow Xeric Haplargids

Typical pedon: Corral very stony loam, in map unit 1095, rangeland. (Colors are for dry soil unless otherwise stated.) The soil surface is partially covered with 10 percent stones, 15 percent cobbles, and 20 percent pebbles.

A1--0 to 3 inches, pale brown (10YR 6/3) very stony loam, very dark grayish brown (10YR 3/2) moist, moderate thin and medium platy structure, slightly hard, very friable, slightly sticky and slightly plastic, few very fine roots, many very fine vesicular pores, 10 percent stones, 15 percent cobbles and 20 percent pebbles, neutral (pH 7.0), clear wavy boundary.

A2--3 to 7 inches, brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist, moderate fine

and medium subangular blocky structure, hard, very friable, sticky and plastic, common very fine roots, many very fine interstia and common very fine tubular pores, 15 percent pebbles, neutral (pH 7.0), clear wavy boundary.

- Bt--7 to 16 inches, yellowish brown (10YR 5/4) sandy clay loam, dark brown (10YR 4/3) moist, strong very fine and medium subangular blocky, hard, very friable, sticky and plastic, common very fine, fine and medium roots, common very fine tubular pores, many thin and moderately thick clay films on faces of peds and in pores, slightly alkaline (pH 7.4), abrupt wavy boundary.
- Cr--16 to 20 inches, soft buffaceous sandstone, common fine and medium roots are along cracks and fractures. Common thin and moderately thick clay films in the upper part along fractures.

Type location: Washoe County, Nevada, about 600 feet north and 600 feet west of the southeast corner of section 26, T 43 N, R 18 E (41 degrees 36 minutes 47 seconds north latitude and 119 degrees 55 minutes 41 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry mid-June through October.

Soil temperature: 47 to 53 degrees F.

Depth to paralithic: 12 to 20 inches.

A horizons:

Value--5 or 6 dry, 3 or 4 moist
Chroma--2 or 3

Bt horizon:

Hue--10YR or 7.5YR
Value--4 through 6 dry
Texture--loam, sandy clay loam or clay loam
Sand content--20 to 50 percent
Reaction--Neutral or slightly alkaline
Rock fragments--0 to 15 percent, mainly pebbles
Structure--Prismatic, angular blocky or subangular blocky

Cotant Series

The Cotant series consists of shallow, well-drained soils that formed in residuum and colluvium from welded tuffs, tuff, rhyolite and mixed sedimentary rocks. Cotant soils are on crests and sideslopes of hills, mountains, and rock pediment remnants. Slopes are 4 to 30 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 42 degrees F.

Taxonomic class: Clayey montmorillonitic, frigid, shallow Andic Argixerolls

Typical pedon: Cotant very gravelly loam, in map unit 1375, range and (Colors are for dry soil unless

otherwise noted.) The soil surface is partially covered with 40 percent pebbles and 5 percent cobbles.

- A--0 to 2 inches, brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist, moderate thin and medium platy structure, slightly hard, very friable, slightly sticky and slightly plastic, common fine roots, many very fine interstia and vesicular pores, 40 percent pebbles and 5 percent cobbles, slightly alkaline (pH 7.6), clear wavy boundary.
- Bl--2 to 9 inches, dark grayish brown (10YR 4/2) clay, very dark brown (10YR 2/2) moist, strong very fine subangular blocky structure, hard, friable, very sticky and very plastic, common medium and fine roots, common fine and very fine tubular pores, many moderately thick clay films on faces of peds and in pores, 10 percent pebbles, common thin pale brown (10YR 6/3) uncoated sand grains on horizontal faces of peds, dark brown (10YR 3/3) moist, slightly alkaline (pH 7.6), abrupt wavy boundary.
- Bt2--9 to 14 inches, dark grayish brown (10YR 4/2) clay, very dark grayish brown (10YR 3/2) moist, strong fine and medium prismatic structure parting to strong medium and coarse angular blocky, very hard, firm, very sticky and very plastic, common fine and medium roots concentrated along vertical faces of peds, common medium and fine tubular pores, 10 percent pebbles, many moderately thick clay films on faces of peds and in pores, slightly alkaline (pH 7.8), clear wavy boundary.
- Bt3--14 to 19 inches, light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist and brown (10YR 5/3) exped, dark brown (10YR 4/3) moist, strong medium prismatic structure parting to strong medium and coarse angular blocky, hard, friable, very sticky and very plastic, common fine and medium roots, common very fine tubular pores, 10 percent pebbles, 10 percent brown (10YR 4/3) clay films, very dark grayish brown (10YR 3/2) moist on faces of peds and in pores, slightly alkaline (pH 7.8), clear smooth boundary.
- Cr--19 to 23 inches, very pale brown (10YR 7/4), weathered tuff, dark yellowish brown (10YR 4/4) moist, few medium and fine roots along weak fracture planes, common moderately thick clay films in upper 2 inches, 5 percent hard pebbles in matrix, moderately alkaline (pH 8.0).

Type location: Washoe County, Nevada, about 600 feet west and 900 feet north of the southeast corner of section 13, T 43 N, R 18 E (41 degrees 38 minutes 35 seconds north latitude and 119 degrees 54 minutes 31 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually moist, moist in winter and spring, dry July through October. Andic Xeric soil moisture regime.

Soil temperature: 42 to 47 degrees F.

Mollic epipedon thickness: 7 to 14 inches, including all or part of argillic horizon.

Depth to paralithic contact: 12 to 20 inches.

Profile reaction: Neutral or slightly alkaline.

A horizon,

Value--5 or 6 dry (5.5 or darker after mixing the surface 7 inches)

Chroma--2 or 3

Value--5 or 6 dry (5.5 or darker after mixing the surface 7 inches)

Bt horizons:

Value--4 through 6 dry 3 through 5 moist. The upper subhorizon is 4 or 5 dry and 3 moist

Chroma--2 through 4 with 4 only in the lower subhorizons

Texture--Clay, some pedons have clay loam subhorizons

Clay content--40 to 60 percent

Rock fragments--0 to 15 percent, mainly pebbles and cobbles, up to 25 percent common in some subhorizons

Structure--Prismatic, angular blocky or subangular blocky

Consistence--Very friable to firm, moist, sticky or very sticky and plastic or very plastic, wet

Btss1--5 to 10 inches, dark brown (7.5YR 4/2) clay, dark brown (7.5YR 3/2) moist, strong fine and medium angular blocky structure, very hard, very friable, very sticky and very plastic, common very fine and few fine medium and coarse roots, common very fine tubular pores, many thin and common moderately thick and thick clay films on faces of peds and lining pores, vertical cracks 2 to 5 millimeters wide and 4 to 6 inches apart extend from 5 to 14 inches, common slickensides, 10 percent pebbles, neutral (pH 7.0), abrupt smooth boundary

Btss2--10 to 14 inches, brown (7.5YR 5/4) and dark brown (10YR 3/3) expd clay, dark brown (7.5YR 4.4 and (10YR 3/3) on exteriors of peds, moist, strong medium prismatic structure parting to strong medium and coarse angular blocky, very hard, firm, very sticky and very plastic, common very fine and fine roots, common very fine tubular pores, many moderately thick and thick clay films on faces of peds and lining pores, common slickensides, 10 percent pebbles, neutral, pH 7.0, abrupt irregular boundary

R--14 to 18 inches, hard massive vesicular basalt rounded into stone size, few fractures

Crocen Series

Crocen series consists of shallow, well drained soils that formed in residuum from basalt, andesite and tuff. The Crocen soils are on plateau rims. Slopes are 2 to 15 percent. The mean annual precipitation is about 14 inches and the mean annual air temperature is about 43 degrees F.

Taxonomic class: Cayey, montmorillonitic, frigid Lithic Argixerols

Typical pedon: Crocen extremely stony loam, in map unit 1185 woodland (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 15 percent stones and boulders, 15 percent cobbles, and 20 percent pebbles.

A1--0 to 1 inch, very dark brown (10YR 2/2) extremely stony loam, black (10YR 2/1) moist, moderate very fine granular structure, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine interstitial pores, 15 percent stones and boulders, 15 percent cobbles, 20 percent pebbles, neutral (pH 6.8), clear wavy boundary.

A2--1 to 3 inches, very dark grayish brown (10YR 3/2) very cobbly loam, very dark brown (10YR 2/2) moist, moderate very fine subangular blocky structure, soft, very friable, slightly sticky and slightly plastic, many very fine roots, many very fine interstitial pores, 10 percent stones, 15 percent cobbles, 20 percent pebbles, neutral (pH 6.8), clear wavy boundary.

Bt--3 to 5 inches, very dark grayish brown (10YR 3/2) clay loam, very dark brown (10YR 2/2) moist, moderate fine subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine and fine and common medium roots, common fine tubular pores, common moderately thick clay films on faces of peds and lining pores, 10 percent pebbles, neutral (pH 7.0), clear wavy boundary.

Type location. Washoe County, Nevada, South of Barre Springs road along power line, about 1,700 feet west and 2,000 feet north of the southeast corner of section 31, T46N, R19E, 41 degrees 51 minutes 47 seconds north latitude and 119 degrees 53 minutes 33 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry from July through October.

Soil temperature: 44 to 47 degrees F.

Thickness of mollic: 7 to 14 inches and includes all or part of the argillic horizon.

Depth to bedrock: 10 to 14 inches

Control section

Rock fragments--10 to 35 percent

Clay content--38 to 45 percent when mixed

A horizons

Value--2 or 3 dry, 2 or 3 moist

Chroma--1 or 2

Organic matter--8 to 10 percent in the A1, 3 to 4 percent in the A2

Bt and Btss1 horizons

Hue--10YR or 7.5YR

Value--3 or 4 dry, 2 or 3 moist

Clay content--33 to 38 percent

Rock fragments--5 to 15 percent, mainly pebbles

Btss2 horizon:

Hue--10YR or 7.5YR

Value--3 through 5 dry, 3 or 4 moist

Chroma--2 through 4

Clay content--50 to 65 percent

Rock fragments--5 to 10 percent, mainly pebbles

Other features--Vertical cracks 5 to 10 millimeters wide, none to common slickensides

Davey Series

The Davey series consists of very deep, somewhat excessively drained soils that formed in alluvium from mixed rock sources. Davey soils are on sand sheets, alluvial fans, lagoons, lake plain terraces and fan skirts. Slopes are 2 to 15 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 49 degrees F.

Taxonomic class: Sandy mixed mesic Xeric Haplocambids

Typical pedon: Davey loamy fine sand, in map unit 1205, rangeland. (Colors are for dry soil unless otherwise noted.)

A—0 to 6 inches, light brownish gray (10YR 6/2) loamy fine sand, very dark grayish brown (10YR 3/2) moist, weak very thin platy structure, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine interstitial pores, neutral (pH 7.3), clear wavy boundary.

Bw—6 to 16 inches, pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist, weak medium subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine interstitial pores, neutral (pH 7.3), clear wavy boundary.

C—16 to 30 inches, pale brown (10YR 6/3) loamy fine sand, dark brown (10YR 4/3) moist, massive, soft, very friable, nonsticky and nonplastic, few very fine roots, many very fine interstitial pores, moderately alkaline (pH 7.9), clear wavy boundary.

Ck1—30 to 41 inches, pale brown (10YR 6/3) loamy fine sand, dark grayish brown (10YR 4/2) moist, massive, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine interstitial pores, slightly effervescent, lime is disseminated, slightly effervescent, lime is disseminated, moderately alkaline (pH 7.9), clear wavy boundary.

Ck2—41 to 60 inches, pale brown (10YR 6/3) fine sand, dark grayish brown (10YR 4/2) moist, massive, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine interstitial pores, slightly effervescent, lime is disseminated, moderately alkaline (pH 8.0).

Type location: Washoe County, Nevada, about 3 miles north of Road 8A and 3.5 miles northwest of Painted Point, in an unsectioned area (41 degrees, 37 minutes, 39 seconds north latitude and 119 degrees, 44 minutes, 57 seconds west longitude).

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry May through October.

Soil temperature: 47 to 53 degrees F.

Thickness of A and Bw horizons: 11 to 23 inches.

Depth to lime: 0 to 30 inches.

Control section:

Clay content: 5 to 10 percent.

Rock fragments: Up to 30 percent in any one horizon but average is less than 15 percent.

Gypsum. Gypsum crystals are below a depth of 20 inches in some pedons.

A horizon:

Hue—10YR or 2.5Y

Value—5 through 7 dry (greater than 5.5 when the surface 7 inches are mixed), 3 through 6 moist.

Chroma—1 through 3.

Reaction—Neutral or slightly alkaline.

Bw horizon:

Hue—10YR or 2.5Y

Value—5 through 7 dry, 3 through 5 moist.

Chroma—2 through 4.

Texture—Fine sandy loam or sandy loam, some pedons have subhorizons that are gravelly sandy loam.

Structure—Prismatic, subangular blocky or fine massive.

Reaction—Neutral to moderately alkaline.

C and Ck horizons:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 through 6 moist.

Chroma—2 through 4.

Texture—Fine sand, loamy fine sand, loamy sand, but thin strata of fine sandy loam or coarse sand are in some pedons.

Reaction—Slightly alkaline to strongly alkaline.

Effervescence—Slightly effervescent, or violently effervescent in the Ck horizon. Segregated lime occur as few or common filaments or as partial coats on rock fragments, or lime is disseminated.

Deseed Series

The Deseed series consists of moderately deep, well drained soils that formed in residuum and colluvium from rhyolite, tuff and basalt. Deseed soils are on plateaus and slopes. Slopes are 2 to 15 percent. Mean annual precipitation is 11 inches and the mean annual temperature is about 45 degrees F.

Taxonomic class: Fine montmorillonitic, frigid Xeric Haplargids

Typical pedon: Deseed silt loam, in map unit 1163, rangeland. (Colors are for dry soil unless otherwise noted.)

A—0 to 3 inches, pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist, moderate thick platy structure, soft, very friable, slightly sticky and slightly plastic, few fine and very fine roots, common very fine vesicular pores, 10 percent pebbles, neutral (pH 7.0), clear smooth boundary.

Bt1—3 to 9 inches, pale brown (10YR 6/3) clay loam, dark brown (10YR 3/3) moist, moderate fine subangular blocky structure, slightly hard, firm, sticky and plastic, few fine and very fine roots, few fine tubular pores, few thin clay films on faces of peds and lining pores, 10 percent pebbles, neutral (pH 7.0), clear smooth boundary.

- Bt2--**9 to 17 inches. light yellowish brown (10YR 6/4) gravelly clay brown (10YR 4/3) moist, moderate medium subangular blocky structure hard firm, sticky and plastic, few very fine roots few fine tubular pores common moderately thick clay films on faces of peds 25 percent pebbles 5 percent cobbles, neutral (pH 7.0), clear smooth boundary
- Bt3--**17 to 25 inches brown (10YR 5/3) gravelly clay yellowish brown (10YR 5/4) moist strong medium subangular blocky structure very hard very firm, very sticky and very plastic, few very fine roots few fine and very fine tubular pores many moderately thick clay films on faces of peds 20 percent pebbles 5 percent cobbles, neutral (pH 7.2) abrupt smooth boundary
- C--**25 to 28 inches light yellowish brown (10YR 6/4) gravelly loam yellowish brown (10YR 5/4) moist massive, hard friable sticky and plastic few very fine roots few very fine tubular pores 5 percent cobbles 20 percent pebbles slightly alkaline (pH 7.5) abrupt irregular boundary
- R--**28 to 32 inches hard basalt

Type location: Washoe County Nevada about 2.5 miles west of Coleman Valley near the Nevada-Oregon state line about 1 450 feet east and 400 feet south of the northwest corner of section 14 T 47 N R 19 E (41 degrees 59 minutes 48 seconds north latitude and 119 degrees 49 minutes 23 seconds west longitude)

Range in Characteristics.

Soil moisture Usually dry moist in winter and spring dry late June through October

Soil temperature 44 to 47 degrees F

Depth to bedrock 20 to 40 inches

Control section

Clay content--Average 35 to 45 percent

Rock fragments--5 to 35 percent, mainly pebbles

A horizon.

Value--5 or 6 dry 3 or 4 moist

Chroma--2 or 3 moist or dry

Bt1 horizon.

Clay content--30 to 35 percent

Texture--Slightly clay loam or clay loam

Reaction--Neutral or slightly alkaline

Bt2, Bt3 horizons

Hue--10YR or 7.5YR

Value--4 through 6 dry 4 or 5 moist

Chroma--3 through 6

Structure--Weak to strong medium or coarse angular or subangular blocky or weak prismatic

Texture--Gravelly clay, gravelly clay loam clay or clay loam

Clay content--35 to 50 percent

Reaction--Neutral or slightly alkaline

C horizons

Hue--10YR

Value--6 through 8 dry 5 through 7 moist

Chroma--2 or 4

Texture--Cobbly loam or gravelly loam

Reaction--Slightly alkaline or moderately alkaline

Devada Series

The Devada series consists of shallow, well drained soils that formed in residuum weathered dominantly from volcanic rock with additions of loess and volcanic ash. Devada soils are on footslopes, sideslopes, shoulders, ridges and summits of plateaus, mountains and hills. Slopes are 2 to 50 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Clayey, montmorillonitic, mesic Lithic Argixerolls

Typical pedon: Devada very cobbly loam (in map unit

1325 range land. (Colors are for dry soil, unless otherwise stated.) The soil surface is partially covered with 30 percent cobbles and 20 percent pebbles.

A1--0 to 2 inches grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist moderate fine and medium poly structure, slightly hard, very friable, slightly sticky and slightly plastic, few very fine roots, many very fine interstitial pores, 30 percent cobbles and 20 percent pebbles, neutral (pH 7.0), clear wavy boundary.

A2--2 to 6 inches brown (10YR 5.3) very cobbly loam, very dark grayish brown (10YR 3/2) moist, moderate fine and medium subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine and common fine roots, many very fine interstitial pores, 30 percent pebbles, 20 percent cobbles, neutral (pH 7.0), abrupt smooth boundary.

Bt1--6 to 11 inches brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist, strong fine and medium subangular blocky structure, hard, very friable, very sticky and plastic, few fine roots, very few fine tubular pores, common moderately thick clay films on faces of peds and in pores, neutral (pH 7.0), clear wavy boundary.

Bt2--11 to 17 inches yellowish brown (10YR 5.4) gravelly clay, dark brown (10YR 4/3) moist, strong medium and coarse angular blocky structure, hard, friable, very sticky and very plastic, few fine roots, few fine tubular pores, many moderately thick clay films on faces of peds and in pores, 15 percent pebbles, neutral (pH 7.3), abrupt irregular boundary.

R--17 to 21 inches hard basalt, few fractures in upper 1 inch, few fine and medium roots in fractures, common thin silica coats on underside of fractured pieces, dark yellowish brown (10YR 4/4) clay, very dark brown (10YR 2/2) moist, weathered in place in some fractures.

Type location: Washoe County Nevada about 1 mile northwest of Vya, about 1 800 feet west and 2 000 feet north of the southeast corner of section 32 T 43 N R 19 E (41 degrees 36 minutes, 11 seconds north latitude and 119 degrees 52 minutes 29 seconds west longitude)

Range in Characteristics:

Soil moisture Usually dry moist in winter and spring, dry in summer and fall
Soil temperature 47 to 53 degrees
Mollic epipedon 7 to 20 inches thick, includes all or part of the argillic horizon
Combined thickness of A and Bt horizons 12 to 20 inches
Depth to bedrock 12 to 20 inches
Control section
 Clay content--40 to 60 percent
 Rock fragments--0 to 30 percent mainly pebbles

A horizons:

Value--4 or 5 dry 2 or 3 moist. Some pedons have a thin surface layer with value of 6 dry but when the upper 7 inches are mixed value is less than 5 5 dry
 Chroma--2 or 3
 Reaction--Slightly acid to slightly alkaline

Bt horizons

Hue--5YR 7.5YR or 10YR
 Value--4 through 6 dry 3 or 4 moist
 Chroma--2 through 4
 Texture--Dominantly clay or gravelly clay commonly with thin subhorizons of clay loam
 Structure--Prismatic, angular blocky subangular blocky Consistence--Slightly hard to very hard dry, sticky to very sticky wet
 Reaction--Neutral or slightly alkaline
 Other features--Some pedons have thin silica coats on peds and rock fragments in the lower part of the Bt horizon

Devoy Series

The Devoy series consist of moderately deep well drained soils that formed in residuum from volcanic rock. Devoy soils are on plateaus. Slopes are 2 to 15 percent. The mean annual precipitation is about 13 inches, and the mean annual temperature is about 44 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic Argic Cryoborols

Typical pedon: Devoy cobbly loam, in map unit 1295, rangeland (Colors are for dry soil unless otherwise noted) The soil surface is partially covered with about 15 percent cobbles and 15 percent pebbles

A1--0 to 5 inches grayish brown (10YR 5/2) cobbly loam, dark brown (10YR 3/3) moist, weak very fine granular structure, slightly hard, friable, slightly sticky and slightly plastic, many very fine and few fine roots, many very fine and fine vesicular pores, 15 percent cobbles 15 percent pebbles neutral (pH 7.2) clear smooth boundary

A2--5 to 10 inches grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist, weak fine subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine, fine and medium roots, many very fine and fine tubular pores,

20 percent cobbles 20 percent pebbles, neutral (pH 6.8), clear smooth boundary
 A/B--10 to 17 inches, light yellowish brown (10YR 6/4) very cobbly clay loam, yellowish brown (10YR 5/4) moist, weak fine subangular blocky structure, hard friable, sticky and plastic, few very fine and fine roots, many very fine and fine tubular pores, 20 percent cobbles, 20 percent pebbles, neutral (pH 6.8), clear wavy boundary

Bt--17 to 30 inches, yellowish brown (10YR 5/4) very cobbly clay, dark yellowish brown (10YR 4/4) moist, strong coarse angular blocky structure, very hard friable, very sticky and very plastic, few very fine roots, common very fine tubular pores, 20 percent cobbles, 20 percent pebbles, common moderately thick clay film on faces of peds and in pores, neutral (pH 6.8), abrupt wavy boundary

R--30 to 34 inches, hard basalt

Type location: Washoe County, Nevada, east of Coleman Valley, about 2,900 feet east and 300 feet south of the northwest corner of section 15 T 47 N R 20 E (41 degrees, 59 minutes, 44 seconds north latitude and 119 degrees, 43 minutes, 19 seconds west longitude)

Range in Characteristics.

Soil moisture Dry during July to October in most years

Soil temperature 44 to 47 degrees F

Mean summer temperature 57 to 59 degrees F

Depth to bedrock 20 to 40 inches.

Control section

Rock fragment--35 to 60 percent

Clay content--35 to 60 percent

Reaction--Slightly acid or neutral

A horizons

Value--2 or 3 moist, 4 or 5 dry

Chroma--1 through 3

Consistence--Soft to slightly hard

Other features--9 to 16 inches thick with thickness increasing with elevation A/B, BtA, or thin weak E horizons occur in some pedons

Bt horizon

Hue 10YR or 7.5YR

Value--4 through 6 dry 3 through 5 moist

Chroma--3 or 4

Texture--Sandy clay, clay or clay loam

Rock fragment--35 to 60 percent

Structure--Angular blocky or prismatic

Other features--Thin zones of carbonate accumulation occur below 36 inches and overlie bedrock in some pedons.

Dosie Series

The Dosie series consists of deep, well drained soils that formed in residuum and colluvium weathered from basalt. The Dosie soils are on plateau and mountain side slopes. Slopes are 15 to 50 percent. The mean annual

precipitation is about 13 inches and the mean annual temperature is about 44 degrees F

Taxonomic class. Clayey-skeletal montmorillonitic, mesic Pachic Argixerolis

Typical pedon: Dose very stony loam, in map unit 1365 rangeland (Colors are for dry soil unless otherwise noted) The soil surface is partially covered with 10 percent stones, 10 percent cobbles, and 30 percent pebbles.

A1--0 to 2 inches, brown (10YR 5/3) very stony loam, dark brown (10YR 3/3) moist, moderate very fine and fine subangular blocky structure, slightly hard, very friable, sticky and plastic, common very fine roots, common very fine tubular pores, 10 percent stones, 10 percent cobbles, 30 percent pebbles, neutral (pH 7.0), clear smooth boundary.

A2--2 to 6 inches, brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist, moderate fine subangular blocky structure, slightly hard, very friable, sticky and plastic, common very fine and fine roots, common very fine tubular pores, 45 percent pebbles, 15 percent cobbles, neutral (pH 7.0), clear wavy boundary.

Bt1--6 to 13 inches, brown (10YR 5/3) very gravelly clay loam, dark brown (7.5YR 3/2) moist, moderate fine and medium subangular blocky structure, slightly hard, very friable, sticky and plastic, common very fine and fine roots, common very fine tubular pores, common thin and moderately thick clay films on faces of peds and in pores, 40 percent pebbles, 10 percent cobbles, neutral (pH 6.8), clear wavy boundary.

Bt2--13 to 22 inches, brown (7.5YR 5/2) very gravelly clay, dark brown (7.5YR 3/2) moist, strong fine and medium subangular blocky structure, hard, very friable, very sticky and very plastic, few very fine, fine and medium roots, common very fine tubular pores, common thin and moderately thick clay films on faces of peds and in pores, 25 percent pebbles, 10 percent cobbles, neutral (pH 6.8), clear wavy boundary.

Bt3--22 to 33 inches, brown (7.5YR 4/4) very gravelly clay, dark brown (7.5YR 3/2) moist, moderate coarse subangular blocky structure, hard, very friable, very sticky and very plastic, few very fine and fine roots, common very fine and fine tubular pores, many thin and moderately thick clay films on faces of peds and in pores, 50 percent pebbles, neutral (pH 6.8), clear wavy boundary.

Bt4--33 to 42 inches, brown (7.5YR 4/4) extremely gravelly clay, dark reddish brown (5YR 3/3) moist, strong very fine and fine angular blocky structure, hard, friable, very sticky and very plastic, few very fine and fine roots, few fine tubular pores, continuous moderately thick pressure faces, 50 percent pebbles, 15 percent cobbles, neutral (pH 7.2).

R--42 to 46 inches, hard basalt, weathered in a few pocket.

Type location: Washoe County Nevada, west of Long Valley, about 1,300 feet north and 1,700 feet east of the southeast corner of section 19, T 44 N, R 19 E, 41 degrees, 42 minutes, 57 seconds north latitude and 119 degrees, 53 minutes, 35 seconds west longitude.)

Range in Characteristics

Soil moisture. Usually moist, moist in winter, spring and late fall, dry in summer, early and mid fall.

Soil temperature. Averages 47 to 53 degrees F.

Mollic epipedon thickness. 20 to 30 inches, includes upper part of Bt horizons. Organic carbon is less than 1 percent below this depth.

Depth to bedrock. 40 to 60 inches.

Control section.

Clay content--Averages 35 to 50 percent. Bt1 horizon typically has less than 35 percent.

Effervescence--Noneffervescent throughout.

Texture--Clay loam, or clay.

Rock fragments--35 to 60 percent average.

A horizons

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Reaction--Slightly acid or neutral.

Bt horizons

Hue--10YR, 7.5YR, or 5YR.

Value--3 or 4, moist and dry.

Chroma--2 through 4, moist and dry.

Texture--Clay loam, or clay.

Clay content--35 to 50 percent average.

Rock fragments--35 to 65 percent in any subhorizon.

Structure--Subangular blocky or angular blocky.

Dugway Series

The Dugway series consists of moderately deep, moderately well drained soils that formed in mixed lacustrine sediments influenced by volcanic ash. The Dugway soils are on remnant lake terraces. Slopes are 0 to 2 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Fine, montmorillonitic, mesic Natraxeralfic Natrindurds.

Typical pedon. Dugway fine sandy loam, in map unit 1320, rangeland (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches, pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist, moderate thin and medium platy structure, slightly hard, very friable, slightly sticky, slightly plastic, many very fine roots, many very fine vesicular pores, moderately alkaline (pH 8.0), abrupt wavy boundary.

A2--2 to 5 inches, light brownish gray (10YR 6/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist, moderate fine and medium subangular blocky structure, hard, very friable, slightly sticky, slightly plastic, many very fine, common very fine roots, many very fine vesicular and interstitial pores, moderately alkaline (pH 8.0), abrupt wavy boundary.

Bt1--5 to 11 inches, pale brown (10YR 6/3) clay, dark brown (10YR 3/3) moist, strong fine and medium

prismatic structure very hard firm, very sticky, very plastic; many very fine and common fine roots common very fine tubular pores, many thin and moderately thick clay films on faces of peds and lining pores common thin light gray (10YR 7/2) bleached sand grains on prism tops, brown (10YR 5/3) moist, strongly alkaline (pH 8.6) clear wavy boundary

Btk--11 to 18 inches pale yellow (2.5Y 7/4) silty clay loam, olive brown (2.5Y 4/4) moist, moderate very fine and fine prismatic structure parting to strong very fine and fine angular blocky hard friable sticky plastic many very fine, common fine and few medium roots common very fine tubular pores common thin and moderately thick clay films on faces of peds and lining pores few fine soft masses of lime strongly alkaline (pH 8.6) clear wavy boundary

Bqk1--18 to 25 inches very pale brown (10YR 7.3) silty loam brown (10YR 4/3) moist strong very fine and fine angular blocky structure hard friable sticky plastic, many very fine roots many very fine tubular pores common thin silica coats bridging mineral grains 30 percent discontinuous weak silica and lime cementation common fine soft masses of lime strongly effervescent, strongly alkaline (pH 9.0) clear wavy boundary

Bqk2--25 to 35 inches light gray (2.5Y 7/2) silt loam, light olive brown (2.5Y 5/4) moist strong thin and medium platy structure hard and very hard friable and firm sticky plastic common very fine roots common very fine tubular pores 60 percent discontinuous weak silica and lime cementation common thin silica coats bridging mineral grains and lining pores common fine soft masses of lime strongly effervescent, strongly alkaline (pH 9.0) clear smooth boundary

Bqkm--35 to 52 inches pale yellow (2.5Y 7/3) continuous strongly cemented duripan brown (10YR 5/3) moist strong thin and medium platy structure, very hard, very firm, brittle very common very fine and fine roots in horizontal root mat at upper boundary, few very fine tubular pores few fine soft masses of lime noneffervescent matrix strongly alkaline (pH 9.0) abrupt smooth boundary

2C--52 to 81 inches light gray (2.5Y 7/2) stratified silt loam and silty clay loam dark grayish brown (2.5Y 4/2) moist massive hard friable sticky plastic, no roots observed few very fine tubular pores slightly effervescent strongly alkaline (pH 9.0)

Type location: Washoe County Nevada About 2 000 feet west 900 feet south of the northeast corner of section 33 T 43 N R 19 E (41 degrees 36 minutes 33 seconds north latitude and 119 degrees 51 minutes 21 seconds west longitude)

Range in Characteristics:

Soil moisture: Moist in winter and spring dry from mid-June through October These soils have a seasonal water table at depth between 5 and 6 feet

Soil temperature: 47 to 51 degrees F

Depth to duripan: 20 to 40 inches

Depth to carbonates: 11 to 24 inches

Control section

Clay content--35 to 50 percent

A horizons:

Value--6 or 7 dry

Chroma--2 or 3

Btn horizons:

Value--5 through 7 dry 3 through 5 moist

Chroma--2 through 4

Clay content--35 to 50 percent

Texture--Silty clay loam silty clay clay

SAR--13 to 45

Effervescence--Noneffervescent to strongly effervescent in the upper part slightly effervescent to violently effervescent in the lower part

Reaction--Moderately alkaline or strongly alkaline

Bqk horizon:

Value--6 through 8 dry 4 or 5 moist

Chroma--2 through 4

Clay Content--20 to 30 percent

Texture--Loam, silt loam silty clay loam

Structure--Platy angular blocky or subangular blocky

Consistence--Hard or very hard dry very friable to firm moist

Reaction--Moderately alkaline or strongly alkaline

Effervescence--Strongly effervescent or violently effervescent, few or common fine soft masses of lime

Cementation--20 to 70 percent weak discontinuous silica cementation

Other features--Few or common silica coats bridging mineral grains

Bqkm horizon:

Cementation--Continuous strong silica cemented duripan

2C horizon:

Texture--Usually stratified; dominantly silt loam, silty clay loam, but includes strata of loam clay loam or fine sandy loam

Structure--Platy or is massive

Consistence--Hard or very hard dry very friable to very firm moist

Easte Series

The Easte series consists of deep well drained soils that formed in material weathered from basalt andesite and volcanic ash Easte soils are on mountains Slopes range from 15 to 70 percent Mean annual precipitation is about 18 inches and the mean annual temperature is about 44 degrees F

Taxonomic class: Loamy-skeletal mixed frigid Pachic Xerumbrepts

Typical pedon: Easte very gravelly sandy loam in map unit 13b5 forested Colors are for dry soil unless otherwise noted

0-2 inches to 0 fresh and decomposing fir needles twigs and sticks abrupt smooth boundary

A1--0 to 5 inches, brown (10YR 5/3) very gravelly sandy loam, very dark brown (10YR 2/2) moist, weak fine and medium subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine roots, many very fine tubular pores, 10 percent cobbles and 40 percent pebbles, slightly acid (pH 6.3), clear wavy boundary.

A2--5 to 10 inches, brown (10YR 4/3) very gravelly sandy loam, very dark brown (10YR 2/2) moist, moderate fine and medium subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine, fine and medium roots, many very fine tubular pores, 10 percent cobbles, 40 percent pebbles, slightly acid (pH 6.3), clear wavy boundary.

Bw1--10 to 13 inches, brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist, moderate medium and coarse subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, many very fine, fine, medium and coarse roots, many very fine tubular pores, 5 percent cobbles, 40 percent pebbles, medium acid (pH 5.6), clear wavy boundary.

Bw2--13 to 20 inches, brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist, moderate coarse subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine, fine and medium and few coarse roots, many very fine and fine tubular pores, 5 percent cobbles, 50 percent pebbles, medium acid (pH 5.6), clear irregular boundary.

Bw3--20 to 42 inches, brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist, weak fine and medium subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, common fine and few medium roots, many very fine and fine tubular pores, 5 percent cobbles, 60 percent pebbles, medium acid (pH 5.6), abrupt irregular boundary.

Cr--42 to 52 inches, soft weathered andesitic tuff.

Type location: Washoe County, Nevada, about 100 feet west and 800 feet north of the southeast corner of section 28, T. 47 N., R. 19 E. (41 degrees 57 minutes 41 seconds north latitude and 119 degrees 50 minutes 52 seconds west longitude.)

Range in Characteristics.

Soil moisture: Usually moist, moist in winter and spring, dry in late summer and fall.

Soil temperature: 42 to 46 degrees F.

Thickness of umbric: 20 to 40 inches.

Depth to paralithic: 40 to 60 inches.

Control section:

Clay content--8 to 18 percent.

Rock fragments--60 to 75 percent.

Base saturation--35 to 50 percent to a depth of 20 to 40 inches and up to 65 percent below this depth.

A horizons:

Hue--10YR or 7.5YR.

Value--3 through 5, dry, 2 or 3 moist.

Chroma--1 through 3.

Reaction--Medium acid or slightly acid.

Bw horizons:

Value--4 or 5, dry.

Chroma--2 or 3.

Reaction--Slightly acid to strongly acid.

Rock fragments--40 to 70 percent, mainly pebbles.

Emagert Series

The Emagert series consists of very deep, moderately well drained soils that formed in alluvium from volcanic rocks and pyroclastic materials. Emagert soils are on stream terraces. Slopes are 0 to 2 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy, mesic Vitric Haploxerolls.

Typical pedon: Emagert loam, in map unit 1450 range land (Colors are for dry soil unless otherwise noted).

A1--0 to 2 inches, grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist, moderate thick platy structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine roots, common very fine interstitial pores, neutral (pH 6.8), clear, smooth boundary.

A2--2 to 14 inches, gray (10YR 5/1) loam, very dark brown (10YR 2/2) moist, moderate coarse prismatic parting to moderate medium platy structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine, fine and medium roots, common very fine interstitial pores, slightly alkaline (pH 7.8), clear wavy boundary.

A3--14 to 24 inches, dark gray (10YR 4/1) finely stratified loam, black (10YR 2/1) moist, weak medium and coarse prismatic parting to moderate medium platy structure, hard, very friable, sticky and plastic, common very fine through coarse roots, many very fine and fine tubular pores, few fine distinct dark yellowish brown (10YR 3/4) moist, relict redox masses, slightly alkaline (pH 7.6), clear wavy boundary.

A4--24 to 38 inches, gray (10YR 5/1) finely stratified loam, very dark gray (10YR 3/1) moist, moderate fine and medium prismatic parting to moderate medium angular blocky structure, very hard, friable, sticky and plastic, few very fine through coarse roots, common very fine and fine tubular pores, few fine and medium distinct dark yellowish brown (10YR 3/4) moist, relict redox masses, slightly alkaline (pH 7.4), clear wavy boundary.

2C--38 to 48 inches, gray (10YR 6/1) silty clay loam, dark gray (10YR 4/1) moist, moderate fine and medium prismatic parting to moderate medium angular blocky structure, very hard, firm, very sticky and plastic, few very fine through coarse roots, common very fine and fine tubular pores, few fine distinct dark yellowish brown (10YR 3/4) moist, relict redox masses, neutral (pH 7.3), abrupt wavy boundary.

3Ab--48 to 60 inches, gray (5Y 5/1) finely stratified loam, very dark gray (5Y 3/1) moist, moderate fine and medium prismatic parting to moderate medium angular blocky structure, very hard, firm, sticky and plastic, few

very fine through coarse roots, common very fine and fine tubular pores, few fine distinct dark yellowish brown (10YR 3/4) moist and black (N 2/) moist redox masses, neutral (pH 7.2)

Type location. Washoe County, Nevada, about 2 miles southeast of Stevens Camp, about 1.4 miles south of the Area of Critical Environmental Concern boundary, about 400 feet east and 100 feet south of the northwest corner of section 13, T. 41 N., R. 22 E., (41 degrees 28 minutes 27 seconds north latitude and 119 degrees 27 minutes 29 seconds west longitude.)

Range in Characteristics:

Soil moisture. Moist in winter and spring, dry from mid-June through October, saturated below 5 feet during late winter and early spring.

Soil temperature. 47 to 50 degrees F.

Thickness of mollic epipedon. 24 to 48 inches, organic matter decreases regularly with depth.

Mineralogy. 35 to 60 percent glass in the very fine and fine sand size throughout.

Control section

Clay content--18 to 27 percent

Texture--Dominantly stratified loam and sandy clay loam with stratified textures of sandy loam to silty clay loam in some pedons

Rock fragments--Less than 10 percent

A horizons

Hue--10YR or 2.5Y

Value--4 or 5 dry, 2 or 3 moist

Chroma--0 through 2

Structure--Weak to moderate fine through coarse prismatic parting to platy or blocky

Reaction--Neutral or slightly alkaline

Redox features--Redox redox features are present in most pedons

C horizon

Hue--10YR, 2.5Y or 5Y

Value--8 through 8 dry, 4 or 5 moist

Chroma--1 or 2

Structure--Weak or moderate fine to medium prismatic parting to platy or blocky, or is massive

Texture--Usually stratified gravelly loamy sand to silty clay loam. Dominantly loam or sandy clay loam when mixed

Esmod Series

The Esmod series consists of shallow to duripan, well drained soils that formed in alluvium derived from volcanic rocks. The Esmod soils are on alluvial fans and remnant fan piedmont summits. Slopes are 2 to 15 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 45 degrees F.

Taxonomic class: Clayey montmorillonitic mesic shallow Abrupt Xeric Argidurands

Typical pedon: Esmod very gravelly fine sandy loam, in map unit 1431, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with approximately 50 percent pebbles.

A1--0 to 2 inches, light brownish gray (10YR 6/2) very gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist, strong medium and thick platy structure, hard, very friable, nonsticky and nonplastic, very fine roots, many very fine and fine vesicular pores, 40 percent pebbles, neutral (pH 7.0), abrupt wavy boundary.

A2--2 to 6 inches, pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist, strong very thin and thin platy structure, slightly hard, friable, slightly sticky and slightly plastic, common very fine and fine and few medium and coarse roots, neutral (pH 7.2), abrupt wavy boundary.

Bt--6 to 15 inches, light brown (7.5YR 6/4) gravelly clay, dark brown (7.5YR 4/4) moist, strong fine and medium subangular blocky structure, very hard, very friable, very sticky and very plastic, common very fine, few fine and medium roots, common fine tubular pores, common thin and moderately thick clay films on faces of peds and lining pores, 15 percent pebbles, slightly alkaline (pH 7.8), abrupt wavy boundary.

Bqm--15 to 21 inches, pink (7.5YR 8/4) strongly silica cemented duripan, strong brown (7.5YR 5/6) moist, strong medium and thick platy structure, extremely hard, extremely firm, common very fine roots matted on plate surfaces, alternate horizontal, light brown (7.5YR 6/4) 1 to 2 millimeter thick silica laminae on tops of plates, dark brown (7.5YR 4/4) moist, moderately alkaline (pH 8.0), clear smooth boundary.

Bqkm1--21 to 28 inches, pink (7.5YR 8/4) continuous strongly silica and lime cemented duripan, strong brown (7.5YR 5/6) moist, moderate thick and very thick platy structure, extremely hard, extremely firm, many fine and medium horizontal masses of lime, many less than 0.5 millimeter lime and silica coats on undersides of pebbles, violently effervescent, moderately alkaline (pH 8.0), clear wavy boundary.

Bqkm2--28 to 36 inches, very pale brown (10YR 7/4), strongly and weakly silica and lime cemented duripan, dark yellowish brown (10YR 4/6) moist, weak medium and thick platy structure, very hard, extremely firm and very firm, alternate horizontal discontinuous 0.5 to 2 millimeter silica laminae, common fine and medium horizontal lime masses, strongly effervescent, moderately alkaline (pH 8.0), clear wavy boundary.

Bqkm3--36 to 60 inches, very pale brown (10YR 8/3), weakly and strongly silica and lime cemented duripan, brown (7.5YR 5/4) moist, massive, very hard, very firm, common less than 0.5 millimeter discontinuous silica laminae, many 1 to 5 millimeter horizontal, soft lime masses, moderately alkaline (pH 8.0).

Type location. Washoe County, Nevada, near the Sheldon Antelope Refuge in an unsectioned area, T. 43 N., R. 22 E., (41 degrees, 38 minutes, 03 seconds

north latitude and 119 degrees 28 minutes, 44 seconds west longitude)

Range in Characteristics

Soil moisture Moist in winter and spring dry mid-June through October Andic bordering on Xeric moisture regime

Soil temperature 47 to 51 degrees F

Depth to durpan 14 to 20 inches

Control section

Clay content--40 to 50 percent

Rock fragments--Less than 20 percent, mainly pebbles

Other features--A clay increase of 15 to 25 percent occurs within a distance of 1 inch between the A and Bt horizons

A horizons

Value--5 through 7 dry 2 or 3 moist

Reaction--Neutral or slightly alkaline

Chroma--2 or 3

Bt horizon

Hue--5YR 7.5YR or 10YR

Value--4 through 6 dry 3 or 4 moist

Reaction--Neutral or slightly alkaline

Chroma--3 through 6

Texture--Clay or gravelly clay

Rock fragments--Less than 20 percent, dominantly pebble-sized

Structure--Subangular blocky angular blocky or prismatic parting to subangular or angular blocky

Bqm horizons

Hue--7.5YR or 10YR

Value--6 through 8 dry 4 or 5 moist

Chroma--4 through 6

Fernpoint Series

The Fernpoint series consists of very deep, well drained soils formed in mixed alluvium. The Fernpoint soils are on lake shore terraces. Slopes are 8 to 30 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 45 degrees F.

Taxonomic class: Fine-loamy mixed mesic Andic Argixerolis

Typical pedon. Fernpoint very gravelly sandy loam, in map unit 1385 rangeland (Colors for dry soil unless otherwise noted)

A1--0 to 2 inches, pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 3/3) moist, moderate very thin and thin platy structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine roots, many very fine and fine vesicular and interstitial pores, 50 percent pebbles, neutral (pH 7.3), clear wavy boundary

A2--2 to 7 inches, brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist, weak very fine subangular

blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, many very fine and common fine roots, common very fine tubular and interstitial pores, 30 percent pebbles, neutral (pH 7.3), clear wavy boundary

Bt1--7 to 13 inches, brown (10YR 5/3) gravelly sandy clay loam, dark brown (10YR 3/3) moist, moderate fine and medium subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine, common fine and few medium roots, many very fine tubular pores, common thin clay films on faces of peds and lining pores, 20 percent pebbles, slightly alkaline (pH 7.6), clear wavy boundary

Bt2--13 to 17 inches, pale brown (10YR 6/3), gravelly sandy clay loam, brown (10YR 4/3), moist, weak medium subangular blocky structure, hard, very friable, sticky and plastic, many very fine, common fine and few medium roots, many very fine tubular pores, common thin clay films on faces of peds and lining pores, 20 percent pebbles, slightly alkaline (pH 7.8), clear wavy boundary

C1--17 to 23 inches, light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 3/4) moist, massive, hard, very friable, slightly sticky and slightly plastic, common very fine and few fine roots, many very fine and fine tubular pores, few thin clay films bridging mineral grains, 25 percent pebbles, 1 percent cobbles, slightly alkaline (pH 7.8), clear wavy boundary

2C1--23 to 32 inches, light yellowish brown (10YR 6/4) extremely gravelly sand, dark yellowish brown (10YR 4/4) moist, massive, soft, very friable, nonsticky and nonplastic, common very fine roots, many very fine interstitial pores, 50 percent pebbles, 10 percent cobbles, slightly alkaline (pH 7.8), gradual wavy boundary

2C2--32 to 48 inches, light yellowish brown (10YR 6/4) extremely gravelly sand, dark grayish brown (10YR 4/2) moist, massive, soft, very friable, nonsticky and nonplastic, few very fine roots, many very fine interstitial pores, 50 percent pebbles, 20 percent cobbles, 1 percent stones, slightly alkaline (pH 7.8), gradual wavy boundary

2C3--48 to 60 inches, variegated colored stratified extremely gravelly sand and extremely cobbly sand, single grain loose, few very fine roots, many very fine and fine interstitial pores, 50 percent pebbles, 20 percent cobbles, 5 percent stones, about 10 percent of rock fragments have 10 percent less than 0.5 mm, meter thick lime coats on underside, noneffervescent matrix, moderately alkaline (pH 8.0)

Type location: Washoe County, Nevada, About 7.5 miles northeast of Vya, about 1 mile east of Nevada Route 34 in an unsectioned area, T 43 N R 20 E (41 degrees 40 minutes, 55 seconds north latitude and 119 degrees, 46 minutes, 09 seconds west longitude)

Range in Characteristics

Soil moisture Moist in winter and spring, dry from July through October

Soil temperature 47 to 51 degrees F

Thickness of mollic 10 to 16 inches; includes part or a

of Bt horizon
 Depth to contrasting layers: 20 to 30 inches
 Depth to carbonates: 40 to 50 inches
 Contrp. section
 Clay content--18 to 25 percent
 Rock fragments--15 to 35 percent pebbles

A horizons

Value--5 or 6 dry 3 or 4 moist Value of 6 only in upper 2 inches
 Chroma--2 or 3

Bt horizons

Value--5 or 6 dry 3 or 4 moist
 Chroma--2 or 3
 Reaction--Neutral or slightly alkaline

C horizons

Textures--stratified extremely gravelly or extremely cobbly sand coarse sand with strata of loamy sand loamy coarse sand. Some pedons have strata of extremely stony sand
 Reaction--Slightly alkaline or moderately alkaline
 Effervescence--Noneffervescent or slightly effervescent matrix few or common less than 0.5 millimeter thick lime coats on underside of rock fragments

Ferver Series

Ferver series consists of moderately deep to duripan, well drained soils formed in alluvium from basalt and andesite. The Ferver soils are on interplateau alluvial fans. Slopes are 2 to 15 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Very-fine montmorillonitic, mesic Vertic Argudids

Typical pedon: Ferver very gravelly loam, in map unit 1175 range and (Colors are for dry soil unless otherwise noted. The soil surface is covered with about 45 percent pebbles)

A1--0 to 2 inches light brownish gray (10YR 6/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist, strong very thin and thin platy structure, hard, very friable, slightly sticky and slightly plastic, many very fine roots, many very fine and fine and common medium vesicular pores, 1 percent cobbles and 45 percent pebbles, slightly alkaline (pH 7.6), abrupt wavy boundary

A2--2 to 5 inches light brownish gray (10YR 6/2) silt loam, dark brown (10YR 3/3) moist, strong very thick and thick platy structure, very hard, very friable, sticky and plastic, common very fine roots, many very fine and fine vesicular pores, 5 percent pebbles, slightly alkaline (pH 7.6), abrupt wavy boundary

Btss1--5 to 15 inches brown (7.5YR 5/4) clay dark brown (7.5YR 4.4) moist, strong medium and coarse prismatic

structure, extremely hard, very firm, very sticky and very plastic, common very fine and fine and few medium and coarse horizontal roots, few very fine tubular pores, many moderately thick clay films on faces of peds and lining pores, vertical cracks 8 millimeters to 1 centimeter wide and 3 to 4 inches apart extend from a depth of 5 to 15 inches, few slickensides, few wedge shaped aggregates tilted 30 degrees from horizontal, 10 percent pebbles, slightly alkaline (pH 7.6), clear wavy boundary

Btss2--15 to 22 inches brown (7.5YR 5/4) clay dark brown (7.5YR 4/3) moist, strong fine and medium prismatic structure parting to strong very fine and fine angular blocky, very hard, firm, very sticky and very plastic, common very fine and fine roots, common very fine tubular pores, many thin and moderately thick clay films on faces of peds and lining pores, few slickensides, few wedge shaped aggregates tilted 30 degrees from horizontal, 10 percent pebbles, slightly alkaline (pH 7.6), clear wavy boundary

Btk--22 to 28 inches, pale brown (10YR 6.3) clay dark brown (10YR 4/3) moist, moderate fine and medium prismatic structure parting to strong fine and medium angular blocky, very hard, friable, very sticky and very plastic, common very fine roots, common very fine tubular pores, common thin and moderately thick clay films on faces of peds and lining pores, 10 percent pebbles, few slickensides, few wedge-shaped aggregates tilted 30 degrees from horizontal, few fine soft masses of lime, moderately alkaline (pH 8.0), gradual wavy boundary

Bqk--28 to 35 inches light yellowish brown (10YR 6.4) clay loam, dark yellowish brown (10YR 4/4) moist, moderate medium prismatic structure parting to strong fine and medium angular blocky, hard, friable, very sticky and very plastic, few very fine roots, common very fine tubular pores, common thin and few moderately thick silica coats bridging mineral grains, 10 percent pebbles, 5 percent 10 to 20 millimeter hard firm durinodes, 5 percent medium and large vertical soft masses of lime along prism faces, 30 percent weak discontinuous silica cementation, moderately alkaline (pH 8.2), abrupt wavy boundary

Bqkm--35 to 46 inches light yellowish brown (10YR 6.4) continuous strongly silica and lime cemented duripan yellowish brown (10YR 5/4) moist, strong thin and medium platy structure, extremely hard, extremely firm alternate medium horizontal plates with 1 to 2 millimeter discontinuous horizontal silica laminae on top of plates, horizontal root mat at upper boundary with many very fine, fine, and few medium roots, violently effervescent lime coats on underside of some plates, gradual wavy boundary

Cr--46 to 53 inches weathered fractured basalt with silica and lime in fractures

Type location: Washoe County, Nevada, About 0.75 miles east of the Nevada-California state line and 0.4 miles north of the Barrel Springs Road, about 100 feet west and 2,100 feet north of the southeast corner of section 20 T. 46 N. R. 18 E. (41 degrees, 53 minutes, 32 seconds north latitude and 119 degrees, 59 minutes, 03 seconds west longitude)

Range in Characteristics:

Soil moisture Moist in winter and spring, dry from mid-June through October. Xeric-Aridic moisture regime
Soil temperature 47 to 51 degrees F
Depth to duripan 20 to 40 inches
Depth to bedrock 40 to 60 inches
Control section
 Clay content--60 to 70 percent
 Rock fragments--Less than 15 percent, mainly pebbles

A horizons

Value--5 or 6 dry, 2 or 3 moist
 Chroma--2 or 3
 Reaction--Neutral or slightly alkaline

Btss and Btk horizons

Hue--10YR or 7.5YR
 Value--5 or 6 dry, 4 or 5 moist
 Chroma--3 or 4
 Clay content--60 to 70 percent in the upper part, 55 to 65 percent in the lower part, when mixed, 60 to 70 percent
 Rock fragments--10 to 15 percent
 Consistence--Very hard through extremely hard dry, friable through very firm moist
 Effervescence--Noneffervescent or slightly effervescent in the lower part, few fine or medium soft masses of lime in the lower part
 Other features--Vertical cracks 5 to 30 millimeters wide, few to common slickensides and wedge-shaped aggregates. A clay increase of 35 to 45 percent occurs within a vertical distance of 1 inch between the A and Bt horizons

Bqk horizon:

Value--6 or 7 dry, 3 through 5 moist
 Chroma--3 or 4
 Effervescence--Noneffervescent or slightly effervescent, few to many fine to large soft masses of lime
 Other--20 to 50 percent weak discontinuous silica cementation, 5 to 10 percent 5 to 15 millimeter durinodes

Bqkm horizon:

Value--6 through 8 dry, 4 through 6 moist
 Chroma--3 or 4
 Cementation--Strongly cemented or moderately cemented

Fiddler Series

The Fiddler series consists of moderately deep, well-drained soils that formed in residuum weathered from extrusive igneous rock. Fiddler soils are on hills and mountains. Slopes range from 15 to 50 percent. The annual precipitation is about 14 inches and the annual temperature is about 50 degrees F.

Taxonomic class. Clayey-skeletal montmorillonitic.

mesic Typic Argixerolls

Typical pedon: Fiddler very stony loam, in map unit 18A, Western Upper windland. Colors are for dry soil unless otherwise stated. The surface is partially covered with 10 percent stones, 15 percent cobbles and 20 percent pebbles.

A1--0 to 2 inches, grayish brown (10YR 5/2) very stony loam, very dark brown (10YR 2/2) moist, moderate very fine and fine subangular blocky structure, soft, friable, sticky and plastic, many very fine and fine roots, common very fine tubular pores, 10 percent stones, 15 percent cobbles and 20 percent pebbles, neutral (pH 7.0), clear wavy boundary.

A2--2 to 7 inches, dark grayish brown (10YR 4/2) very stony loam, very dark brown (10YR 2/2) moist, moderate fine and medium subangular blocky structure, hard, very friable, sticky and plastic, many very fine and fine and common medium roots, common very fine tubular pores, 20 percent stones, 15 percent cobbles and 10 percent pebbles, neutral (pH 7.0), gradual wavy boundary.

B11--7 to 11 inches, brown (7.5YR 5/2) very stony clay loam, dark brown (7.5YR 3/2) moist, strong fine and medium subangular blocky structure, hard, very friable, sticky and plastic, many very fine, fine, medium and coarse roots, common very fine tubular pores, many thin and moderately thick clay films on faces of peds and in pores, 20 percent stones, 15 percent cobbles, 15 percent pebbles, neutral (pH 7.0), clear wavy boundary.

Bt2--11 to 20 inches, brown (7.5YR 5/4) very stony clay, dark brown (7.5YR 4/4) moist, strong fine and medium subangular blocky structure, very hard, friable, very sticky and very plastic, many very fine, common fine and medium and few coarse roots, few very fine tubular pores, many moderately thick and thick clay films on faces of peds and in pores, 25 percent stones, 10 percent cobbles, 15 percent pebbles, neutral (pH 6.8), gradual wavy boundary.

Bt3--20 to 28 inches, strong brown (7.5YR 5/6) very stony clay, brown (7.5YR 4/4) moist, moderate medium and coarse angular blocky structure, very hard, friable, very sticky and very plastic, common very fine and few fine and medium roots, few very fine tubular pores, many moderately thick and thick clay films on faces of peds and in pores, 20 percent stones, 10 percent cobbles, 10 percent pebbles, slightly acid (pH 6.5), clear regular boundary.

R--28 to 32 inches, dark gray (N 4/0) hard fractured basalt

Type location: Washoe County, Nevada, about 2 miles north of Barrel Springs road, about 2,300 feet east and 2,000 feet south of the northeast corner of section 31, T 47 N, R 19 E, (41 degrees 57 minutes, 14 seconds north latitude and 119 degrees 53 minutes, 41 seconds west longitude.)

Range in Characteristics:

Soil moisture Usually moist, moist in winter and spring, dry late summer and fall
Soil temperature 50 to 56 degrees F
Thickness of mollic 8 to 20 inches

Depth to bedrock 20 to 40 inches

Reaction Slightly acid or neutral

A horizons:

Hue--10YR or 7.5YR

Value--4 or 5 dry, 2 or 3 moist

Chroma--2 or 3

Clay content--18 to 27 percent

Bt horizons:

Hue--10YR or 7.5YR

Value--4 or 5 dry, 3 or 4 moist

Chroma--2 through 6

Texture--Very stony clay loam, very cobbly clay loam or very stony clay

Clay content--35 to 55 percent

Rock fragments--35 to 55 percent, mainly stones and cobbles

Fitzwater Series

The Fitzwater series consists of very deep, well drained soils that formed in colluvium and residuum from basalt and tuff. Fitzwater soils are on plateau side slopes. Slopes are 30 to 50 percent. The mean annual precipitation is about 14 inches and the annual temperature is about 45 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Andic Haploxerolls

Typical pedon: Fitzwater extremely stony loam, in map unit 1285, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with about 15 percent stones, 20 percent cobbles, and 20 percent pebbles.

A1--0 to 4 inches, grayish brown (10YR 5/2) extremely stony loam, very dark grayish brown (10YR 3/2) moist, weak thin platy structure, soft, very friable, slightly sticky and nonplastic, many very fine and fine roots, many very fine vesicular pores, 15 percent stones, 20 percent cobbles, and 20 percent pebbles, neutral (pH 6.6), clear smooth boundary.

A2--4 to 10 inches, grayish brown (10YR 5/2) extremely stony loam, very dark grayish brown (10YR 3/2) moist, moderate medium and fine subangular blocky structure, soft, friable, slightly sticky and slightly plastic, many very fine and fine roots, many very fine tubular pores, 20 percent stones, 30 percent cobbles and 15 percent pebbles, neutral (pH 6.6), clear smooth boundary.

2Bw--10 to 19 inches, brown (7.5YR 5/4) extremely cobbly clay loam, brown (10YR 4/3) moist, moderate medium subangular blocky structure, slightly hard, friable, sticky and plastic, common very fine and fine roots, common very fine tubular pores, 5 percent stones, 45 percent cobbles and 25 percent pebbles, neutral (pH 7.0), clear wavy boundary.

2C--19 to 60 inches, pale brown (10YR 6/3) extremely cobbly loam, brown (10YR 4/3) moist, massive, slightly hard, firm, sticky and plastic, few very fine roots,

common very fine tubular pores, 20 percent stones, 45 percent cobbles, and 25 percent pebbles, neutral (pH 7.0).

Type location: Washoe County, Nevada, east of Coeman Valley near the Nevada-Oregon state line, about 4,700 feet west and 400 feet south of the northeast corner of section 16, T. 47 N., R. 20 E., (41 degrees 59 minutes 44 seconds north latitude and 119 degrees 44 minutes 57 seconds west longitude.)

Range in Characteristics.

Soil moisture Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature 44 to 47 degrees F.

Mollic epipedon 7 to 12 inches thick.

Control section

Clay content--18 to 25 percent

Rock fragments--60 to 90 percent, mainly cobbles and stones

Sand content--30 to 50 percent

A horizons:

Value--3 through 5 dry, 2 or 3 moist

2Bw horizon:

Hue--10YR or 7.5YR

Value--5 or 6 dry, 3 or 4 moist

Texture--Loam or clay loam

Rock fragments--5 to 10 percent stones, 30 to 50 percent cobbles, and 20 to 30 percent pebbles

2C horizon:

Hue--10YR or 7.5YR

Value--5 or 6 dry

Chroma--3 or 4

Rock fragments--10 to 40 percent stones, 30 to 50 percent cobbles, and 15 to 30 percent pebbles

Frentera Series

The Frentera series consists of moderately deep, well drained soils that formed in colluvium weathered from volcanic rocks and ash. Frentera soils are on side slopes of hills and plateaus. Slopes are 15 to 30 percent. The mean annual precipitation is 11 inches and the mean annual temperature is 44 degrees F.

Taxonomic class: Ashy, frigid Vitriollic Andic Haploxerolls

Typical pedon: Frentera gravelly sandy loam, in map unit 1245, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 30 percent pyroclastic pebbles.

A1--0 to 2 inches, brown (10YR 5/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist, weak very fine subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine roots, many

very fine interstitial pores, 30 percent pebbles, neutral (pH 6.6), clear wavy boundary

A2--2 to 9 inches, grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist, moderate fine subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine and fine common medium and few coarse roots, many very fine tubular pores, 15 percent pebbles, neutral (pH 7.0), clear wavy boundary

Bw1--9 to 16 inches, brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist, moderate fine and medium subangular blocky structure, soft, very friable and nonsticky and nonplastic, many very fine and fine and common medium roots, many very fine tubular pores, 20 percent pebbles, neutral (pH 7.0), clear wavy boundary

Bw2--16 to 22 inches, light yellowish brown (10YR 6/4) gravelly sandy loam, dark brown (10YR 4/3) moist, moderate coarse subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine and few fine roots, many very fine interstitial pores, 25 percent pebbles, neutral (pH 7.0), abrupt irregular boundary

R--22 to 26 inches, brownish yellow (10YR 6/6) hard tuff yellowish brown (10YR 5/6) moist

Type location. Washoe County Nevada in an unsectioned area, T 42 N R 22 E, (41 degrees, 35 minutes, 21 seconds north latitude and 119 degrees, 32 minutes, 48 seconds west longitude)

Range in Characteristics:

Soil moisture. usually moist in winter and spring, dry June through October. They are warmer than 41 degrees F from April 15 to November 1, and they are dry within this period after July 1

Soil temperature. 44 to 47 degrees F

Depth to bedrock. 20 to 40 inches

Mollic epipedon. 10 to 20 inches thick

Volcanic ash. 30 to 60 percent volcanic ash

Reaction. Neutral in the upper part and neutral to moderately alkaline in the lower part

Control section

Clay content 12 to 18 percent

Rock fragments--15 to 35 percent

A horizons

Value--4 or 5 dry, 2 or 3 moist

Chroma--2 or 3

Bw horizons

Value--4 through 6 dry, 3 or 4 moist

Structure--Weak to moderate subangular blocky structure

Texture--loam and sandy loam

Rock fragments--15 to 35 percent

Freznik Series

The Freznik series consist of moderately deep, moderately well drained soils that formed in residuum from tuff and basalt. Freznik soils are on plateaus. Slopes are 2 to 16 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 43 degrees F

Taxonomic class. Fine, montmorillonitic, frigid Xero Paleargids

Typical pedon. Freznik very stony loam in map unit 1105, rangeland (Colors are for dry soil unless otherwise noted.) The surface is covered with about 10 percent stones, 15 percent cobbles, and 20 percent pebbles

A--0 to 3 inches, pale brown (10YR 6/3) very stony loam dark brown (10YR 3/3) moist, moderate thin and medium platy structure, slightly hard, very friable, sticky and plastic, many very fine and common fine roots, many very fine vesicular pores, 10 percent stones, 15 percent cobbles, 20 percent pebbles, slightly alkaline (pH 7.4), abrupt wavy boundary

Bt1--3 to 9 inches, yellowish brown (10YR 5/4) gravelly clay, dark brown (10YR 4/3) moist, weak fine and medium prismatic structure parting to strong fine and medium subangular blocky, very hard, firm, very sticky and very plastic, common very fine and fine and few medium roots, few very fine tubular pores, many moderately thick and thick clay films on faces of peds and in pores, many pressure faces on faces of peds, 20 percent pebbles, slightly alkaline (pH 7.4), clear wavy boundary

Bt2--9 to 15 inches, yellowish brown (10YR 5/4) clay, dark brown (10YR 4/3) moist, moderate medium prismatic structure parting to strong medium and coarse angular blocky, very hard, firm, very sticky and very plastic, common very fine and fine roots, few very fine tubular pores, many moderately thick and thick clay films on faces of peds and in pores, many pressure faces of peds, 5 percent pebbles, slightly alkaline (pH 7.6), clear wavy boundary

Bt3--15 to 23 inches, light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist, moderate medium and coarse angular blocky structure, hard, very friable, very sticky and very plastic, few very fine fine and medium roots, few very fine tubular pores, common thin and moderately thick clay films on faces of peds and in pores, many pressure faces on faces of peds, 10 percent pebbles, moderately alkaline (pH 8.0), abrupt wavy boundary

R--23 to 27 inches, hard basalt with few thin silica and lime coats in some fractures

Type location: Washoe County Nevada, about 8 miles north of Barrel Springs Road along power line, about 1600 feet east and 300 feet south of the claywest

corner of section 15 and the Nevada-Oregon state line
T 47 N R 18 E (41 degrees, 59 minutes, 45
seconds north latitude and 119 degrees, 57 minutes,
31 seconds west longitude)

Range in Characteristics:

Soil moisture Usually dry, moist in winter and spring, dry
in summer and fall

Soil temperature 44 to 47 degrees F

Depth to bedrock 20 to 40 inches

Other features A clay increase of 15 to 25 percent occurs
within a vertical distance of 1 inch between the A and
Bt horizon

Control section

Clay content--40 to 60 percent

Rock fragments--0 to 15 percent, mainly pebbles

A horizon

Value--4 through 6 dry, 3 or 4 moist

Chroma--1 through 3

Reaction--Slightly alkaline or moderately alkaline

Bt horizons

Hue--7.5YR or 10YR

Value--4 through 6 dry, 3 through 5 moist

Chroma--3 through 6

Structure--Prismatic, angular blocky or subangular
blocky in the upper part and blocky or massive in
the lower part

Reaction--Slightly alkaline or moderately alkaline,
increasing with depth

Effervescence--Noneffervescent in the upper part and
noneffervescent or slightly effervescent in the lower
part. Some pedons have a BCl horizon 2 to
inches thick, it is clay loam or clay with 30 to 45
percent clay

Fulstone Series

The Fulstone series consists of shallow over duripan, well
drained soils that formed in alluvium from mixed rocks.
Fulstone soils are on fan piedmonts remnants. Slopes are
2 to 15 percent. The mean annual precipitation is about 9
inches and the mean annual temperature is about 51
degrees F.

Taxonomic class Clayey montmorillonitic mesic
shallow Abruptic Xeric Argidurids

Typical pedon. Fulstone very gravelly sandy loam, in
map unit 1410 rangeland (Colors are for dry soil
unless otherwise noted.) The soil surface is partially
covered with 5 percent cobbles and 40 percent
pebbles.

A--0 to 4 inches, light brownish gray (10YR 6/2) very
gravelly sandy loam, dark grayish brown (10YR 4/2)
moist, moderate fine subangular blocky structure, soft,
very friable, slightly sticky and nonplastic, few very fine
and fine roots, common fine and very fine interstitial

and tubular pores, 5 percent cobbles, 40 percent
pebbles, neutral pH, abrupt wavy boundary
Bt1--4 to 10 inches, brown (7.5YR 5/4) clay, brown (7.5YR
4/4) moist, strong medium prismatic structure parting to
strong fine and medium angular blocky, very hard, firm,
very sticky and very plastic, common fine and very fine
roots, few fine and very fine tubular pores, continuous
pressure faces, neutral pH, abrupt wavy boundary
Bt2--10 to 16 inches, brown (7.5YR 5/4) clay, brown
(7.5YR 4/4) moist, moderate medium prismatic
structure parting to strong fine angular blocky, hard,
firm, very sticky and very plastic, few fine and very fine
roots, few fine and very fine tubular pores, many
moderately thick clay films on faces of peds and in
pores, neutral pH, abrupt wavy boundary
Bqkm--16 to 26 inches, light yellowish brown (10YR 6/4)
indurated duripan, brown (10YR 4/3) moist, very thick
platy structure, extremely hard, extremely firm, root mat
on surface, strongly effervescent, slightly alkaline (pH
7.6), gradual wavy boundary
2Bqk--26 to 60 inches, light gray (10YR 2) very cobbly,
sandy loam, brown (10YR 5/3) moist, massive, slightly
hard, friable, nonsticky and nonplastic, 40 percent thin
to thick weakly silica-lime cemented horizontal layers
and masses, 20 percent cobbles, 30 percent pebbles,
strongly effervescent, slightly alkaline (pH 7.6)

Type location: Washoe County, Nevada, about 0.6 miles
northeast of Stevens Camp, about 2,200 feet north and
300 feet west of the southeast corner of section 3, T
41 N R 22 E, (41 degrees, 29 minutes, 42 seconds
north latitude and 119 degrees, 28 minutes, 47
seconds west longitude)

Range in Characteristics.

Soil moisture Usually dry, moist in winter and spring, dry
from June through October

Soil temperature 47 to 53 degrees F

Depth to indurated duripan 14 to 20 inches

Other features Some pedons have a thin Bt3 horizon with
clay or clay loam textures

Control section

Clay content--45 to 60 percent

Rock fragments--0 to 15 percent with individual horizon
ranging up to 20 percent

A horizon.

Value--5 or 6 dry, 3 or 4 moist

Chroma--1 through 3

Reaction--Slightly acid to slightly alkaline

Bt horizons

Hue--7.5YR or 10YR

Value--4 through 6 dry, 3 or 4 moist

Chroma--2 through 6

Structure--Prismatic, angular blocky or subangular
blocky

Clay content--45 to 60 percent

Rock fragments--Usually free of rock fragments, but
some pedons average up to 20 percent pebbles or
cobbles due to mixing by burrowing animals
Reaction--Neutral to moderately alkaline

Bqkm horizon

Other features--Essentially continuously cemented, but broken in some places by burrowing animals

east of northwest corner of section 21 T. 41 N. R. 22 E., (41 degrees 27 minutes 12 seconds north latitude 119 degrees 30 minutes 28 seconds west longitude)

2Bqk horizon:

Rock fragments--50 to 85 percent pebbles and cobbles

Reaction--Slightly alkaline to strongly alkaline

Range in Characteristics

Soil moisture Moist in winter and spring; dry mid-June through October

Soil temperature 47 to 51 degrees F

Depth to dunpan and bedrock 7 to 14 inches

Control section

Clay content--35 to 50 percent

Rock fragments--Averages 5 to 25 percent; dominantly pebbles when mixed

Grassyacan Series

The Grassyacan series consists of very shallow and shallow well drained soils that formed in residuum and colluvium derived from volcanic rocks. The Grassyacan soils are on plateau summits and shoulders. Slopes are 0 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Clayey montmorillonitic mesic shallow Abruptic Xeric Argidurids

Typical pedon: Grassyacan very stony fine sandy loam in map unit 1430, rangeand. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with approximately 5 percent stones, 10 percent cobbles, and 40 percent pebbles.

A1--0 to 1 inches grayish brown (10YR 5/2) very stony fine sandy loam; very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; 5 percent stones, 10 percent cobbles and 40 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

A2--1 to 4 inches light brownish gray (10YR 6/2) gravelly loam; dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 15 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

Bt1--4 to 7 inches pinkish gray (7.5YR 6/2) clay loam; dark brown (7.5YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; many thin and few moderately thick clay films on faces of peds; 10 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

Bt2--7 to 12 inches brown (7.5YR 5/4) clay; dark brown (7.5YR 4/4) moist; moderate fine prismatic structure parting to strong fine angular blocky; hard firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; common moderately thick clay films on faces of peds; 10 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

Bqm--12 to 13 inches continuous indurated silica cemented dunpan; extremely hard, extremely firm

R--13 to 16 inches hard basalt

Type location: Washoe County, Nevada; about 3 miles southeast of Stevens Camp and 2.5 miles east of Grassy Canyon; about 1,500 feet south and 2,600 feet

A horizons.

Value--5 or 6 dry; 3 or 4 moist

Chroma--2 or 3

Consistence--Soft or slightly hard; dry

Bt horizons.

Hue--5YR, 7.5YR or 10YR

Value--4 through 6 dry; 3 or 4 moist

Chroma--2 through 4

Texture--Clay or clay loam

Clay content--35 to 60 percent

Rock fragments--Averages 5 to 25 percent; dominantly pebbles

Structure--Subangular blocky or angular blocky in the upper part; prismatic parting to blocky in the lower part.

Other features--A clay increase of at least 15 percent occurs within a distance of 1 inch either between the A horizon and Bt horizons or between the Bt1 and Bt2 horizons.

Bqm horizon:

Other features--Continuous 1 to 25 millimeter thick indurated silica laminar dunpan

Hackwood Series

The Hackwood series consists of very deep, well drained soils that formed in alluvium and colluvium derived from quartzite, conglomerate and igneous rocks with a component of loess. Hackwood soils are on hills and mountain side slopes. Slopes are 4 to 70 percent. The mean annual precipitation is about 18 inches and the mean annual temperature is about 41 degrees F.

Taxonomic class: Fine-loamy mixed Pachic Cryoborols

Typical pedon: Hackwood gravelly loam in map unit 1258, aspen woodland. (Colors are for dry soil unless otherwise noted.)

O1--0.5 to 0 inches aspen leaf litter (0.5 to 4 inches thick)

A1--0 to 4 inches dark grayish brown (10YR 4/2) gravelly loam; very dark brown (10YR 2/2) moist; strong medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, medium and coarse roots; many very

- fine and fine interstitial pores. 20 percent pebbles. slightly acid (pH 6.5). clear smooth boundary.
- A2—4 to 13 inches. dark grayish brown (10YR 4/2) gravelly loam. very dark brown (10YR 2/2) moist. moderate fine and medium subangular blocky structure. soft. very friable. slightly sticky and slightly plastic. many very fine. fine. medium and coarse roots. many very fine tubular pores. 20 percent pebbles. slightly acid (pH 6.4). clear wavy boundary.
- A3—13 to 20 inches. dark grayish brown (10YR 4/2) gravelly loam. very dark brown (10YR 2/2) moist. moderate fine and medium subangular blocky structure. soft. very friable. slightly sticky and slightly plastic. many very fine. fine. medium and coarse roots. many very fine tubular pores. 25 percent pebbles. neutral (pH 6.8). clear wavy boundary.
- AC—20 to 32 inches. brown (10YR 5/3) gravelly loam. dark grayish brown (10YR 4/2) moist. weak medium subangular blocky structure. slightly hard. very friable. sticky and plastic. common very fine and fine and many medium and coarse roots. common very fine tubular pores. 30 percent pebbles. slightly acid (pH 6.3). clear wavy boundary.
- 2C1—32 to 43 inches. pale brown (10YR 6/3) very gravelly clay loam. dark grayish brown (10YR 4/2) moist. weak medium subangular blocky structure. slightly hard. friable. sticky and plastic. common very fine and fine and many medium and coarse roots. common very fine tubular pores. 40 percent pebbles. slightly acid (pH 6.3). gradual smooth boundary.
- 2C2—43 to 60 inches. light brownish gray (10YR 6/2) very gravelly loam. dark grayish brown (10YR 4/2) moist. massive. slightly hard. very friable. sticky and plastic. few fine and common medium and coarse roots. few very fine tubular pores. few very thin silt coatings line pores. 45 percent pebbles. slightly acid (pH 6.2).

Type location: Washoe County, Nevada, in an aspen grove on the south side of Harre Springs road, west of Bailey Mountain, about 1100 feet west and 1350 feet north of the southeast corner of section 20 T. 46 N. R. 19 E. (41 degrees, 53 minutes, 25 seconds north latitude and 119 degrees, 52 minutes, 16 seconds west longitude).

Range in Characteristics.

- Soil moisture:** Moist late fall through summer; dry September and October.
- Additional soil moisture:** Supplied by lateral water movement in lower part of the control section or substratum. This additional moisture is transitory and dependent on snowpack and is sporadic.
- Soil temperature:** 38 to 44 degrees F.
- Average summer soil temperature:** 43 to 47 degrees F.
- Mollic epipedon thickness:** 16 to 35 inches.
- Depth to 2C horizon:** 30 to 49 inches.
- Reaction:** Neutral or slightly acid, decreasing with depth.
- Control section:**
- Clay content—Averages 18 to 30 percent.
 - Rock fragments—Averages 15 to 35 percent, mainly pebbles.

A horizons.

- Value—4 or 5 dry, 2 or 3 moist.
- Chroma—1 through 3 dry, 1 or 2 moist.

AC horizon.

- Hue—2.5Y or 10YR.
- Value—5 through 7 dry, 4 or 5 moist.
- Chroma—2 or 3.
- Texture—Silt loam, loam, gravelly silt loam, and gravelly loam.
- Structure—Subangular blocky or is massive.
- Consistence—Slightly hard or hard dry, very friable or friable, moist, slightly sticky or sticky and slightly plastic or plastic wet.

2C horizons

- Hue—2.5Y or 10YR.
- Value—6 through 7 dry, 4 or 5 moist.
- Chroma—2 or 3.
- Structure—Subangular blocky or is massive.
- Consistence—Slightly hard or hard dry, very friable or friable, moist, slightly sticky or sticky and slightly plastic or plastic wet.
- Texture—Commonly very gravelly loam, very gravelly clay loam, gravelly clay loam, gravelly silty clay loam.
- Other features—Pores are lined with very thin silt coats or uncoated sand grains. Some pedons have few to common fine distinct 10YR 5/6 dry and 4/4 moist mottles. Some pedons have few manganese stains coating pebbles and lining pores.

Halvert Series

Halvert series consists of moderately deep, well drained soils that formed in colluvium and alluvium from basalt and andesite. The Halvert soils are on interplateau side slopes. Slopes are 0 to 8 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Very-fine, montmorillonitic, mesic Vertic Durixerolls.

Typical pedon: Halvert gravelly loam, in map unit 1126 rangeland (Colors are for dry soil unless otherwise noted.)

- A1—0 to 2 inches. grayish-brown (10YR 5/2) gravelly loam. very dark grayish brown (10YR 3/2) moist. strong thin and medium platy structure. hard, very friable, sticky plastic. many very fine roots. many very fine vesicular and interstitial pores. 5 percent cobbles, 15 percent pebbles. slightly alkaline (pH 7.6). abrupt smooth boundary.
- A2—2 to 5 inches. brown (7.5YR 5/2) gravelly clay loam. dark brown (7.5YR 3/2) moist. strong very fine and fine subangular blocky structure. hard, very friable, sticky plastic. many very fine, common fine roots. many very fine tubular. common very fine vesicular pores, 5 percent cobbles, 15 percent pebbles. common thin pinkish gray (7.5YR 7/2) uncoated sand grains on

- horizontal faces of peds: slightly alkaline (pH 7.6); abrupt wavy boundary
- Btss**--5 to 21 inches, dark brown (7.5YR 4/3) clay, dark brown (7.5YR 3/3) moist; moderate fine and medium prismatic structure parting to strong very fine and fine angular blocky; extremely hard, very firm, very sticky; very plastic; common very fine and few fine roots; few very fine tubular pores; many thin and moderately thick clay films on faces of peds and lining pores; vertical cracks 8 millimeters to 1 centimeter wide and 4 to 5 inches apart extend from a depth of 5 to 18 inches; few slickensides; few wedge-shaped aggregates tilted 30 degrees from horizontal; 10 percent pebbles; slightly alkaline (pH 7.8); clear wavy boundary
- Btqk**--21 to 27 inches, pink (5YR 4) gravelly clay brown (5YR 5.4) moist; strong medium and coarse angular blocky structure; hard, friable, very sticky, very plastic; common very fine roots; common very fine tubular pores; many moderately thick and thick clay films on faces of peds and lining pores; 5 percent cobbles; 15 percent pebbles; 0.5 to 1.0 millimeter thick silica and lime coats on 50 percent of underside of rock fragments; few fine soft masses of lime; moderately alkaline (pH 8.4); abrupt wavy boundary
- Bqkm**--27 to 32 inches, continuous 2 to 3 millimeter silica laminae capped indurated durpan; strong thin and medium platy structure; extremely hard, extremely firm; alternate medium horizontal plates with laminae capped horizontal root mat at upper boundary with many very fine, fine and few medium roots; violently effervescent in few places; clear smooth boundary
- Cr**--32 to 40 inches, fractured basal with clay and silica in fractures

Type location. Washoe County, Nevada. On the Barrage Springs road at the Nevada-California state line, about 1,700 feet north and 75 feet east of the southwest corner of section 20, T.46 N., R.18 E. (41 degrees 53 minutes 30 seconds north latitude and 119 degrees 58 minutes 52 seconds west longitude.)

Range in Characteristics

Soil moisture. moist in winter and spring, dry from July through October

Soil temperature. 47 to 51 degrees F

Thickness of mollic. 12 to 24 inches

Depth to durpan. 20 to 32 inches

Depth to bedrock. 24 to 40 inches

Control section

Clay content--60 to 70 percent

Rock fragments--10 to 25 percent, mainly pebbles

A horizons:

Value--5 or 6 dry, 2 or 3 moist. Value of 6 only in upper 2 inches or uncoated sand grains

Chroma--2 or 3

Reaction--Neutral or slightly alkaline

Btss horizon

Hue--10YR or 7.5YR

Value--4 or 5 dry, 3 or 4 moist

Chroma--3 or 4

Clay content--60 to 70 percent in the upper part

Texture. Clay or gravelly clay

Rock fragments. 10 to 25 percent, mainly pebbles

Consistence. Hard through extremely hard dry, friable to very firm moist

Reaction. Slightly alkaline or moderately alkaline

Other features. Vertical cracks 5 to 25 millimeters wide; few to common slickensides and wedge-shaped aggregates

Btqk horizon:

Hue--10YR or 7.5YR

Value--5 through 7 dry, 4 through 6 moist

Chroma--3 or 4

Clay content--55 to 65 percent

Reaction--slightly or moderately alkaline

Effervescence--Noneffervescent or slightly effervescent; few fine or medium soft masses of lime

Bqkm horizon:

Cementation--Continuous 2 to 3 millimeter silica laminae capped indurated durpan

Hangrock Series

The Hangrock series consists of shallow to a durpan, well drained soils that formed in a loam derived from volcanic rocks and vitric pyroclastic materials. Hangrock soils are on fan piedmonts often overplaced on pediments. Slopes are 2 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class. Ashy mesic, shallow Haploxeralfic Argidurids

Typical pedon: Hangrock very gravelly loam, in map unit 1150 (large and). Colors are for dry soil unless otherwise noted. The soil surface is covered by approximately 5 percent cobbles; 40 percent pebbles.

A--0 to 4 inches, light brownish gray (10YR 6/2) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable; slightly sticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 5 percent cobbles; 35 percent pebbles; neutral (pH 6.6); clear smooth boundary

Bt1--4 to 9 inches, pale brown (10YR 6/3) gravelly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable; sticky and plastic; common very fine and fine roots; common very fine tubular pores; common thin clay films on faces of peds; 15 percent pebbles; neutral (pH 6.6); clear smooth boundary

Bt2--9 to 17 inches, light yellowish brown (10YR 6/4), gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine prismatic parting to strong medium subangular blocky structure; hard, friable; sticky and plastic; common very fine and fine roots; common very fine tubular pores; common moderately thick clay films on faces of peds; 15 percent pebbles; neutral (pH 6.8); abrupt wavy boundary

Bqm—17 to 24 inches, strongly cemented dunpan with fractured discontinuous lenses of very rigid material; massive, extremely hard, extremely firm, 30 percent pebbles, slightly alkaline (pH 7.4), gradual wavy boundary

Bqkm—24 to 60 inches, strongly cemented dunpan consisting of many strongly cemented plates with weakly cemented material between the plates, 30 percent pebbles, thin lime coatings on some rock fragments and dunpan fragments, strongly effervescent matrix, slightly alkaline (pH 7.6)

Type location: Washoe County, Nevada, about 1 1/2 miles southeast of Hanging Rock Canyon, 2,200 feet north and 200 feet east of the southwest corner of section 31 T 42 N R 23 E, (41 degrees, 30 minutes, 35 seconds north latitude and 119 degrees, 26 minutes, 18 seconds west longitude)

Range in Characteristics

Soil moisture: Usually dry, moist in winter and spring, dry early June through October

Soil temperature: 47 to 52 degrees F

Depth to dunpan: 14 to 20 inches

Mineralogy: 35 to 60 percent glass in the very fine and fine sand size throughout

A horizon:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist (after mixing 7 inches value greater than 5.5 dry)

Chroma—2 or 3.

Bt horizons:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 through 5 moist

Chroma—2 through 4 or 6

Texture—Loam or clay loam

Clay content—25 to 35 percent

Rock fragments—15 to 35 percent, dominantly pebbles

Bqm horizon:

Cementation—Most fragments will fail at 1 joule, very rigid pieces will typically fail at 3 joules

Typical pedon: Hapgood very gravelly loam, in map unit 1345, rangeland (Colors are for dry soil unless otherwise noted)

A1—0 to 3 inches, dark grayish brown (10YR 4/2) very gravelly loam, very dark brown (10YR 2/2) moist, moderate thin and medium platy structure, soft, very friable, nonsticky and slightly plastic, few fine and many very fine roots, many fine interstices and few very fine tubular pores, 40 percent pebbles, slightly acid (pH 6.4), clear smooth boundary

A2—3 to 8 inches, dark grayish brown (10YR 4/2), very gravelly loam, very dark brown (10YR 2/2) moist, massive, slightly hard, friable, slightly sticky and slightly plastic, few fine and medium and many very fine roots, many very fine interstices and common very fine tubular pores, 40 percent pebbles, neutral (pH 6.6), clear smooth boundary

A3—8 to 26 inches, grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist, massive, slightly hard, friable, slightly sticky and slightly plastic, few fine and many very fine roots, many very fine interstices and common very fine tubular pores, 30 percent pebbles, neutral (pH 6.6), clear smooth boundary

AC—26 to 36 inches, grayish brown (10YR 5/2) very gravelly loam, dark brown (10YR 3/3) moist, massive, soft, very friable, slightly sticky and slightly plastic, few fine and many very fine roots, many very fine interstices and common very fine tubular pores, 50 percent pebbles, neutral (pH 6.8), abrupt wavy boundary

C—36 to 50 inches, very pale brown (10YR 7/3) very cobbly loam, brown (10YR 5/3) moist, many fine and medium faint brown (10YR 5/3) iron stains along vertical cleavage planes, massive, slightly hard, friable, slightly sticky and slightly plastic, few fine, and common very fine roots, common very fine tubular pores, 20 percent cobbles and 20 percent pebbles, neutral (pH 6.8), abrupt wavy boundary

R—50 to 54 inches, hard, fractured andesite

Type location: Washoe County, Nevada, approximately 60 miles west of Denio Junction, 300 feet north and 450 feet east of the southwest corner of section 10 T 46 N R 19 E, (41 degrees, 54 minutes, 59 seconds north latitude and 119 degrees, 50 minutes, 46 seconds west longitude)

Range in Characteristics

Soil moisture: Moist in winter and spring, dry late July through early October

Mean annual soil temperature: 38 to 47 degrees F

Average summer soil temperature: 55 to 59 degrees F

Mollic epipedon thickness: 16 to 60 inches

Depth to bedrock: 40 to 60 inches

Control section

Clay content—18 to 27 percent

Rock fragments—35 to 50 percent, dominantly pebbles

Reaction—Slightly acid or neutral

A horizons

Hue—10YR or 7.5YR

Value—2 through 5 dry, 2 or 3 moist

Hapgood Series

The Hapgood series consists of deep, well drained soils that formed in colluvium from mixed rocks with a component of loess and mixed volcanic ash. Hapgood soils are dominantly on hills and mountain sideslopes. Slopes are 4 to 70 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 42 degrees F.

Taxonomic class: Loamy-skeletal, mixed Pachic Cryoborals

Chroma--1 through 3 in most pedons; chroma of 1 is common only in A1 horizon and chroma of 3 is common only in A3 horizon or below
 Base saturation--50 to 75 percent in upper part
 Other features--A4 horizons may replace AC horizon in some pedons

C horizon

Hue--10YR or 7.5YR
 Value--4 through 7 dry, 3 through 5 moist
 Chroma--2 through 6
 Texture--Predominantly loam, but strata of fine sandy loam, sandy loam, silty loam or clay loam are permissible
 Other features--Some pedons lack C horizons where the mollic epipedon rests on the bedrock at depths less than 48 inches

Hart Camp Series

The Hart Camp series consists of shallow, well drained soils that formed in residuum weathered from tuff. The Hart Camp soils are on rock pediment remnants, plateaus, mountains and hills. Slopes are 4 to 30 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy mixed frigid shallow Andic Arg xero s

Typical pedon: Hart Camp stony loam, in map unit 1275, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 2 percent stones, 5 percent cobbles, and 15 percent pebbles.

A--0 to 3 inches, brown (10YR 5/3) stony loam, very dark grayish brown (10YR 3/2) moist, moderate very thin platy structure, soft, very friable, slightly sticky and slightly plastic, many very fine roots, many very fine and fine vesicular and interstitial pores, 2 percent stones, 5 percent cobbles and 15 percent pebbles, neutral (pH 7.0), clear smooth boundary.

BA--3 to 8 inches, brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist, moderate very fine and fine subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine roots, many very fine tubular pores, 20 percent pebbles, neutral (pH 7.0), clear wavy boundary.

Bt1--8 to 12 inches, brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist, moderate fine and medium subangular blocky structure, hard, very friable, sticky and plastic, many very fine and fine roots, common very fine tubular pores, 25 percent pebbles, many thin clay films on faces of peds and in pores, neutral (pH 7.0), clear wavy boundary.

Bt2--12 to 16 inches, yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist, moderate medium subangular blocky structure, hard, friable, sticky and plastic, many very fine and fine roots, many very fine tubular pores, 25 percent pebbles, common thin and moderately thick clay films on faces of peds and in pores, neutral (pH 6.7), abrupt irregular boundary.

Cr--16 to 20 inches, light yellowish brown (10YR 6/4), weathered tuff, common thin and few moderately thick clay films at the upper boundary and in few places.

Type location: Washoe County, Nevada, approximately 2,000 feet north of Barrel Springs road, about 2,000 feet east and 1,300 feet south of the northwest corner of section 20 T 46 N R 19 E (41 degrees 53 minutes 50 seconds north latitude and 119 degrees 52 minutes, 44 seconds west longitude).

Range in Characteristics

Soil moisture: Usually dry, moist winter and spring, dry late June through October.

Soil temperature: 44 to 47 degrees F.

Mollic epipedon thickness: 7 to 15 inches, includes part or all of argillic horizon.

Profile reaction: Slightly acid to neutral.

Depth to weathered bedrock: 10 to 20 inches.

Control section

Clay content--Averages 18 to 35 percent.

Rock fragments--Averages 15 to 35 percent.

A horizon

Value--4 through 6 dry, 2 or 3 moist. When the surface 7 inches are mixed, its value is less than 5.5.

Chroma--2 or 3.

Bt horizons

Hue--10YR or 7.5YR.

Value--4 through 6 dry, 2 through 4 moist.

Chroma--2 through 4.

Texture--Gravelly sandy clay loam, gravelly clay loam, gravelly loam.

Clay content--20 to 35 percent. Subhorizons of clay occur in some pedons.

Rock fragments--Averages 15 to 35 percent.

Structure--Weak to strong, fine to coarse subangular or angular blocky or has moderate or strong, fine or medium prismatic in some pedons.

Hartig Series

The Hartig series consists of deep, well drained soils that formed in colluvium from andesite, dacite, rhyolite and volcanic tuff. The Hartig soils are on mountain sideslopes. Slopes are 8 to 70 percent. The mean annual precipitation is about 14 inches and the mean annual temperature 42 degrees F.

Taxonomic class: Loamy-skeletal mixed frigid Andic Haploxerolls.

Typical pedon: Hartig gravelly loam, in map unit 1272, rangeland. (Colors are for dry soil unless otherwise noted.)

A--0 to 10 inches, grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist, weak very fine and fine platy structure, soft, very friable, nonsticky and nonplastic, many fine roots, many fine and very

fine interstitial pores, 15 percent pebbles, slightly acid (pH 6.4), abrupt smooth boundary

- Bw 10 to 21 inches light brownish gray (10YR 6/2) very gravelly loam, dark brown (10YR 3/3) moist, weak medium subangular blocky structure, slightly hard, very friable, nonsticky and nonplastic, many fine roots, common very fine tubular pores, 40 percent fine pebbles, neutral (pH 6.8), gradual smooth boundary
- C 21 to 42 inches light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist, massive, soft, very friable, nonsticky and nonplastic, common fine roots, many very fine interstitial pores, 55 percent pebbles and cobbles, neutral (pH 7.0), abrupt wavy boundary

R 42 to 46 inches—unweathered bedrock

Type location: Washoe County, Nevada, approximately 1 000 feet southeast of the northwest corner of section 9 T 46 N R 19 E, (41 degrees, 55 minutes, 42 seconds north latitude and 119 degrees, 51 minutes, 52 seconds west longitude)

Range in Characteristics

Soil moisture: Usually dry, moist in winter and spring, dry from June through mid October

Soil temperature: 44 to 47 degrees F

Mollic epipedon: 10 to 20 inches thick, may include upper part of cambic horizon

Effervescence: Noneffervescent throughout profile

Depth to bedrock: 40 to 60 inches

Control section

Clay content—12 to 18 percent

Rock fragments—35 to 60 percent

A horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry

Chroma—2 or 3 moist

Consistence—Soft or slightly hard, dry

Reaction—Slightly acid or neutral

Bw horizon

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Texture—Loam, sandy loam

Clay content—12 to 20 percent

Rock fragments—35 to 60 percent

Reaction—Slightly acid or neutral

C horizon

Hue—10YR or 7.5YR

Value—6 or 7 dry, 3 or 4 moist

Chroma—3 or 4

Texture—Loam or sandy loam

Clay content—10 to 18 percent

Rock fragments—35 to 60

Structure—Subangular blocky or massive

Consistence—Very friable and friable, moist

Indian Creek Series

The Indian Creek series consists of shallow, well drained soils that formed in mixed alluvium. The Indian Creek soils are on terraces and dissected alluvial fans. Slopes are 4 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual air temperature is about 50 degrees F.

Taxonomic class: Clayey, montmorillonitic, mesic, shallow Xeric Argidurids

Typical pedon: Indian Creek very cobbly loam, in map unit 1285, rangeland. (Colors are for dry soil unless otherwise noted.) The surface is partially covered with 20 percent cobbles and 15 percent pebbles.

A1—0 to 2 inches, pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist, moderate thin platy structure, slightly hard, very friable, sticky and plastic, many very fine roots, common fine and very fine vesicular pores, few uncoated sand grains, 20 percent cobbles and 15 percent pebbles, neutral (pH 7.0), abrupt wavy boundary.

A2—2 to 5 inches, pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist, moderate very fine subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine, common fine and few medium roots, many fine and very fine interstitial pores, many uncoated sand grains, 25 percent pebbles, neutral (pH 7.0), clear wavy boundary.

Bt1—5 to 10 inches, yellowish brown (10YR 5/4) gravelly clay loam, dark brown (7.5YR 3/4) moist, strong fine and medium subangular blocky structure, hard, very friable, very sticky and very plastic, many very fine common fine, and few medium roots, common very fine tubular pores, many moderately thick clay films on faces of peds and in pores, 25 percent pebbles, slightly alkaline (pH 7.4), clear wavy boundary.

Bt2—10 to 18 inches, strong brown (7.5YR 5/6) gravelly clay, dark brown (7.5YR 4/4) moist, strong fine and medium angular blocky structure, hard, very friable, very sticky and very plastic, common very fine and few fine and medium roots, few very fine tubular pores, many moderately thick clay films on faces of peds and in pores, 20 percent pebbles, moderately alkaline (pH 7.4), abrupt wavy boundary.

Bqkm—18 to 25 inches, white (10YR 8/2) indurated dunpan, light yellowish brown (10YR 8/4) moist, strong thick and very thick platy structure, extremely hard, extremely firm and very firm, few very fine and fine roots in horizontal root mat at upper boundary and between some plates, 70 percent cemented pebbles, continuous 1 to 2 millimeter thick horizontal silica laminae, many moderately thick and thick silica coats, strongly effervescent between plates and surface of plates, moderately alkaline (pH 8.0), abrupt wavy boundary.

2Ck1—25 to 36 inches, light gray (10YR 7/2) extremely gravelly loamy coarse sand, dark grayish brown (10YR 4/2) moist, massive, hard, very friable, nonsticky and nonplastic, few very fine and fine roots, many fine

interstitial pores. 60 percent pebbles. common fine and medium fine coats on underside of pebbles. slightly alkaline (pH 7.8) clear wavy boundary

3Ck2--36 to 60 inches, light brownish gray (10YR 6/2) very gravelly loamy coarse sand. dark grayish brown (10YR 4/2) moist. massive. slightly hard. very friable. few very fine roots. many fine interstitial pores. 50 percent pebbles. common fine and medium fine coats on underside of pebbles. slightly alkaline (pH 7.4)

Type local on: Washoe County, Nevada, about 500 feet west and 100 feet north of the southeast corner of section 21 T 43 N R 18 E (41 degrees 37 minutes 33 seconds north latitude and 119 degrees 57 minutes 55 seconds west longitude)

Range in Characteristics:

Soil moisture Usually dry. moist during winter and spring

Soil temperature 50 to 53 degrees F

Depth to duripan 14 to 20 inches

Control section

Clay content--35 to 55 percent

A horizons

Value--5 or 6 dry. 2 or 3 moist

Chroma--2 or 3

Reaction--Slightly acid or neutral

Other features--It commonly has a desert pavement of pebbles, cobbles and stones. lightly coated with desert varnish

Bt horizons.

Hue--10YR 7.5YR or 5YR

Value--4 through 6 dry. 3 through 5 moist

Chroma--4 through 6

Texture--Clay, sandy clay or gravelly clay

Clay content--35 to 55 percent

Rock fragments--5 to 35 percent. mainly pebbles

Reaction--Slightly acid to slightly alkaline

Bqkm horizon.

Cementation--Continuous indurated cap or plates with strong silica cementation below

C horizons

Texture--Loamy coarse sand, coarse sandy loam, sandy loam or sandy clay loam

Rock fragments--40 to 80 percent. mainly pebbles and some cobbles with a few stones

Secondary lime accumulation--Occur as filaments or soft masses or as coatings on underside of rock fragments

Isolde Series

The Isolde series consists of very deep, excessively drained soils that formed in eolian sand from mixed rock sources. Isolde soils are on semi-stabilized dunes over lake plains, beach terraces, lake beds, playas, lake terraces, alluvial fans and uplands. Slopes are 2 to 15

percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 52 degrees F

Taxonomic class: Mixed mesic Typic Torripsamments

Typical pedon: Isolde fine sand. in map unit 1215 rangeland (Colors are for dry soil unless otherwise noted)

A--0 to 7 inches, light gray (10YR 7/2) fine sand, dark grayish brown (10YR 4/2) moist, single grained, loose, nonsticky and nonplastic, many very fine roots, many very fine and fine interstitial pores. moderately alkaline (pH 8.4) clear wavy boundary

C1--7 to 24 inches, light gray (10YR 7/2) fine sand, dark grayish brown (10YR 4/2) moist, massive, soft, very friable, nonsticky and nonplastic, many very fine and common fine roots, many very fine and fine interstitial pores. moderately alkaline (pH 8.4) clear smooth boundary

C2--24 to 42 inches, light gray (10YR 7/2) fine sand, dark grayish brown (10YR 4/2) moist, massive, soft, very friable, nonsticky and nonplastic, many very fine common fine and few medium roots, many very fine and fine interstitial pores, strongly effervescent, moderately alkaline (pH 8.4) clear wavy boundary

C3--42 to 55 inches, light gray (10YR 7/2) fine sand, brown (10YR 4/3) moist, massive, soft, very friable, nonsticky and nonplastic, common very fine and few fine and medium roots, many very fine and fine interstitial pores, strongly effervescent, moderately alkaline (pH 8.4) clear wavy boundary

Ck--55 to 62 inches, light gray (10YR 7/2) fine sand, brown (10YR 4/3) moist, massive, soft, very friable, nonsticky and nonplastic, common very fine and few fine and medium roots, many very fine and fine interstitial pores, few fine soft masses of lime, strongly effervescent, moderately alkaline (pH 8.4)

Type location: Washoe County, Nevada, 1,200 feet west and 1,600 feet south of the northeast corner of section 17 T 41 N R 18 E, (41 degrees 28 minutes 36 seconds north latitude and 119 degrees 59 minutes 24 seconds west longitude)

Range in Characteristics:

Soil moisture Usually dry. moist for short periods in winter and spring. dry from summer to mid fall

Soil temperature 53 to 57 degrees F

Reaction Neutral to moderately alkaline

Control section

Texture--Commonly fine sand or in some pedons sand with 50 to 80 percent passing number 40 sieve and 1 to 10 percent passing the number 200 sieve

A horizon.

Hue--10YR or 2.5Y

Value--5 through 7 dry. 4 or 5 moist

Chroma--2 or 3

C horizons.

Hue--10YR or 2.5Y

Value--6 or 7 dry. 4 or 5 moist

Chroma--2 or 3

Other features: Some pedons have a 2C horizon below 40 inches. In some pedons the lower C horizon is moderately to strongly alkaline and noneffervescent to strongly effervescent.

Jaybee Series

The Jaybee series consists of very shallow and shallow well drained soils that formed in residuum and colluvium from basic volcanic rocks primarily from basalt. Jaybee soils are on hills, mountains and plateaus. Slopes are 2 to 8 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy mixed mesic Lithic Xeric Hapargids

Typical pedon: Jaybee very cobbly loam, in map unit 1125, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is covered with 2 percent stones, 20 percent pebbles, and 25 percent cobbles.

A1--0 to 4 inches: pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist, moderate fine and medium subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, few very fine roots, common very fine vesicular pores, 2 percent stones, 20 percent cobbles, 15 percent pebbles, slightly alkaline (pH 7.4), clear smooth boundary.

Bt1--4 to 8 inches: brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist, moderate fine subangular blocky structure, slightly hard, very friable, sticky and plastic, few very fine roots, few very fine tubular and common very fine interstitial pores, common thin clay films on faces of peds and in pores, 25 percent pebbles, neutral (pH 7.2), clear smooth boundary.

Bt2--8 to 14 inches: yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 4/4) moist, moderate medium prismatic structure parting to fine subangular blocky, hard, very friable, very sticky and very plastic, few very fine and common medium and coarse roots, common very fine tubular pores, common moderately thick clay films on faces of peds and lining pores, 20 percent pebbles, 5 percent cobbles, neutral (pH 6.8), abrupt irregular boundary.

R--14 to 18 inches: fractured hard basalt.

Type location: Washoe County, Nevada, on the Barrel Springs road about 400 feet east of the Nevada-California state line, about 1,000 feet north and 400 feet east of the southwest corner of section 20, T. 46 N., R. 18 E., 41 degrees, 53 minutes, 22 seconds north latitude and 119 degrees, 59 minutes, 47 seconds west longitude.)

Range in Characteristics

Soil moisture: Usually dry during summer and fall, moist winter and spring.

Soil temperature: 54 to 57 degrees F.

Depth to lithic contact: 7 to 14 inches.

Control section

Clay content--25 to 35 percent

Rock fragments--Averages 15 to 35 percent after mixing

A horizon

Hue--10YR or 7.5YR

Value--4 through 6 dry, 3 or 4 moist

Chroma--2 through 4

Reaction--Neutral or slightly alkaline

Other features--The surface 7 inches has value lighter than 5.5 dry or 3.5 moist after mixing.

Bt horizons

Hue--10YR or 7.5YR

Value--5 or 6 dry, 3 or 4 moist

Chroma--2 through 4

Texture--Clay or clay loam

Clay content--35 to 45 percent

Reaction--Neutral or slightly alkaline

Karlo Series

The Karlo series consists of moderately deep well drained soils that formed in residuum from volcanic rocks. Karlo soils are on plateaus. Slopes range from 0 to 8 percent. The mean annual precipitation is about 11 inches and the mean annual air temperature is about 44 degrees F.

Taxonomic class: Very-fine, montmorillonitic, frigid Leptic Haploxererts

Typical pedon: Karlo very cobbly clay, in map unit 1180, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 30 percent cobbles and 20 percent pebbles.

A1--0 to 3 inches: dark reddish brown (6YR 3/3) very cobbly clay, dark brown (7.5YR 3/2) moist, strong very fine and fine granular structure, hard, very friable, very sticky and very plastic, common very fine and fine roots, many very fine interstitial pores, 30 percent cobbles and 20 percent pebbles, neutral (pH 7.0), abrupt smooth boundary.

A2--3 to 5 inches: dark reddish brown (5YR 3/3) silty clay, dark brown (7.5YR 3/2) moist, moderate fine angular blocky structure, hard, friable, very sticky and very plastic, common very fine and fine roots, many very fine and fine interstitial pores, vertical cracks 10 to 30 millimeters wide and 3 to 6 inches apart, slightly alkaline (pH 7.4), clear smooth boundary.

A3--5 to 10 inches: dark reddish brown (5YR 3/3) clay, dark brown (7.5YR 3/2) moist, moderate coarse prismatic structure parting to strong fine and medium angular blocky, very hard, friable, very sticky and very plastic, common very fine and fine roots, common very fine interstitial pores, vertical cracks 10 to 20 millimeters wide and about 3 to 6 inches apart, pressure faces on 60 percent of faces of peds, slightly alkaline (pH 7.4), clear smooth boundary.

Bwss--10 to 25 inches: reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) moist, strong coarse prismatic

structure parting to strong fine and medium angular blocky, very hard, firm, very sticky and very plastic, few very fine roots, common very fine interstitial pores, vertical cracks 10 millimeters to 1 centimeter wide and about 3 to 6 inches apart, common wedge-shaped aggregates tilted 30 degrees from horizontal, many intersecting slickensides, moderately alkaline (pH 8.0), clear smooth boundary.

- Bkss**--25 to 30 inches, reddish brown (5YR 4/3) silty clay, dark brown (7.5YR 3/4) moist, strong fine and medium angular blocky structure, hard, friable, very sticky and very plastic, few very fine roots, few very fine tubular pores, few wedge-shaped aggregates tilted 30 degrees from horizontal, few slickensides, few fine lime masses, moderately alkaline (pH 8.2), abrupt smooth boundary.
- R**--30 to 34 inches, hard basalt, strong brown (7.5YR 5/6) decomposed rock materials in fractures, thin continuous white lime coats on fractured faces.

Type location: Washoe County, Nevada, about 2,000 feet west and 2,500 feet south of the northeast corner of sec. 33 T. 46 N. R. 19 E. (41 degrees 51 minutes, 54 seconds north latitude and 119 degrees, 51 minutes 19 seconds west longitude.)

Range in Characteristics

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature: 44 to 45 degrees.

Depth to bedrock: 24 to 40 inches.

Other features: Cracks are open to the surface for about 150 to 180 days (mid-June to November).

Control section

Clay content--60 to 70 percent

A horizons

Hue--10YR 7.5YR or 5YR

Value--3 or 4 dry or moist

Chroma--2 through 4

Reaction--Slightly acid to slightly alkaline

Other features--A surface cover of 20 to 60 percent basalt cobbles is present in most pedons.

Bwss and Bkss horizons

Hue--10YR 7.5YR or 5YR

Value--3 or 4 dry or moist

Chroma--2 through 4

Structure--Prismatic, subangular blocky or angular blocky

Reaction--Mildly alkaline or moderately alkaline

Other features--Slickensides are on 20 to 70 percent of faces of peds.

Langston Series

The Langston series consists of very deep, well drained soils that formed in alluvium over lake sediments derived from mixed sources. Langston soils are on lake terraces and alluvial fan piedmonts. Slopes are 2 to 8 percent. The

mean annual precipitation is about 8 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Fine-loamy over sandy or sandy skeletal, mixed, mesic Xeric Haplargids.

Typical pedon: Langston gravelly sandy loam, in map unit 1040, rangeland. (Colors are for dry soil, unless otherwise noted.)

A 0 to 3 inches, pale brown (10YR 6/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist, strong thin and medium platy structure, hard, very friable, nonsticky and nonplastic, common very fine roots, many very fine and fine vesicular pores, 25 percent pebbles, neutral (pH 7.0), abrupt wavy boundary.

Bt--3 to 11 inches, pale brown (10YR 6/3) gravelly sandy clay loam, dark brown (10YR 3/3) moist, strong fine and medium subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine and fine common medium and few coarse roots, many very fine tubular pores, common thin clay films on faces of peds and in pores, 20 percent pebbles, neutral (pH 7.0), abrupt wavy boundary.

2Bk1--11 to 19 inches, very pale brown (10YR 7/4) very gravelly sand, dark yellowish brown (10YR 4/4) moist, massive, soft, very friable, nonsticky and nonplastic, common very fine and few fine roots, many very fine interstitial pores, 50 percent pebbles, few (2 percent) very thin lime pendants on rock fragments, slightly effervescent, slightly alkaline (pH 7.4), abrupt wavy boundary.

3Bk2--19 to 29 inches, very pale brown (10YR 7/3) very gravelly coarse sand, brown (10YR 5/3) moist, massive, loose when dry and moist, few very fine and medium roots, many very fine interstitial pores, 50 percent pebbles, common (20 percent) very thin lime pendants on rock fragments, strongly effervescent, slightly alkaline (pH 7.6), clear wavy boundary.

4C--29 to 60 inches, variegated colored, extremely gravelly coarse sand and extremely gravelly sand, massive, loose when dry and moist, no roots observed, many very fine interstitial pores, 75 percent pebbles, strongly effervescent, moderately alkaline (pH 8.0).

Type location: Washoe County, Nevada, about 4.5 miles east of Vya on Road 8A to power line, about 0.4 miles south along power line in an unsectioned area, (41 degrees 34 minutes 40 seconds north latitude and 119 degrees 45 minutes 18 seconds west longitude).

Range in Characteristics

Soil moisture: Usually dry, moist in winter and spring, dry from June through October.

Soil temperature: 47 to 52 degrees F.

Depth to discontinuity: 11 to 20 inches.

Control section

Clay content--18 to 30 percent in the upper part and 0 to 5 percent in the lower part.

Rock fragments--Averages 10 to 35 percent in the upper part and 65 to 90 percent in the lower part.

A horizon

Value--5 through 7 dry, 3 or 4 moist when mixed.

Chroma--2 or 3
Reaction--Slightly acid or neutral

Bt horizon:

Hue--7.5YR or 10YR
Value--5 or 6 dry, 4 or 5 moist
Chroma--2 or 3
Texture--Sandy clay loam, clay loam, loam
Clay content--18 to 30 percent
Rock fragments--Averages 10 to 35 percent
Reaction--Slightly acid to slightly alkaline
Structure--Subangular blocky or is massive

Bk horizons:

Hue--2.5Y or 10YR
Value--3 through 7 dry, 3 through 5 moist
Chroma--1 through 3
Texture--Stratified gravelly sand through extremely gravelly coarse sand
Rock fragments--Averages 65 to 90 percent, most of which are pebbles
Reaction--Slightly alkaline or moderately alkaline
Other features--Depth to lime coatings on rock fragments--11 to 40 inches. Some pedons have thin silica coats on undersides of rock fragments
Effervescence--Noneffervescent to violently effervescent

C horizons

Other features--Horizons may be present in some pedons

Layview Series

The Layview series consists of shallow, well drained soils that formed in residuum and colluvium from andesite, rhyolite, chert and tuff. Layview soils are on mountain crests, summits, shoulders and side slopes. Slopes are 4 to 30 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 42 degrees F.

Taxonomic class: Loamy-skeletal, mixed, Argic, Lithic Cryoborolls

Typical pedon: Layview very gravelly loam, in map unit 1345, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is covered with 5 percent cobbles and 40 percent pebbles.

A1--0 to 1 inch, brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist, weak, very fine and fine subangular blocky structure, soft, very friable, slightly sticky and slightly plastic, few very fine roots, many very fine vesicular pores, 5 percent cobbles, 45 percent pebbles, slightly alkaline (pH 7.6), abrupt smooth boundary.

A2--1 to 4 inches, brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist, weak, fine and medium subangular blocky structure, soft, very friable, sticky and plastic, few very fine roots, many very fine vesicular pores, 50 percent pebbles, slightly alkaline (pH 7.6), clear wavy boundary.

Bt1--4 to 12 inches, brown (10YR 4/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist, moderate fine medium subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine, common fine and few medium roots, many very fine tubular pores, common thin clay films on faces of peds and in pores, 45 percent pebbles, slightly alkaline (pH 7.8), clear wavy boundary.

Bt2--12 to 14 inches, yellowish brown (10YR 5.4) very gravelly loam, dark brown (10YR 3/3) moist, weak medium angular blocky structure, slightly hard, very friable, sticky and plastic, common very fine and few fine roots, many very fine tubular pores, few thin clay films on faces of peds and in pores, 40 percent pebbles, slightly alkaline (pH 7.8), abrupt, regular boundary.

2R--14 to 18 inches, hard volcanic andesite with few fractures.

Type location: Washoe County, Nevada, about 600 feet west and 1,000 feet north of southeast corner of section 16, T.46 N., R.19 E. (41 degrees 54 minutes 14 seconds north latitude and 119 degrees 51 minutes 01 second west longitude.)

Range in Characteristics

Soil moisture: These soils are usually dry during summer and fall, moist mid-October through mid-July.

Soil temperature: 43 to 47 degrees F.

Average summer soil temperature: 50 to 59 degrees F.

Depth to bedrock: 10 to 14 inches.

Reaction: Neutral or slightly alkaline.

Mollic epipedon thickness: 7 to 12 inches.

Control section:

Clay content--18 to 30 percent.

Rock fragments--35 to 60 percent, mainly pebbles.

A horizons

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Bt horizons:

Value--4 or 5 dry, 3 or 4 moist.

Chroma--2 through 4.

Texture--Very gravelly loam or very gravelly clay loam.

Clay content--22 to 35 percent.

Rock fragments--35 to 60 percent, mainly pebbles.

Structure--Weak or moderate subangular or angular blocky.

Consistence--Soft to hard, very friable or friable, slightly sticky or sticky and slightly plastic or plastic.

Lofftus Series

The Lofftus series consists of moderately deep to a dunpan, somewhat poorly drained soils that formed in lacustrine sediments with an ash mantle. Lofftus soils are on low terraces in basins. Slopes are 0 to 1 percent. The mean annual precipitation is about 9 inches and the annual temperature is about 47 degrees F.

Taxonomic class: Ashy mesic Aquicambic Haploids

Chroma: 0 through 2

Other: Layers of white ash a few inches thick are in some pedons

Typical pedon: Loftus silt loam, in map unit 1115
rangeland (Colors are for dry soil unless otherwise noted)

Akn--0 to 2 inches, gray (10YR 6/1) silt loam, dark grayish brown (10YR 4/2) moist, moderate very thin platy structure, slightly hard, friable, very sticky and plastic, many very fine and fine roots, common fine vesicular pores, strongly effervescent, carbonates are disseminated, white salt and black organic staining occur in patches on the soil surface, strongly alkaline (pH 9.0), clear smooth boundary

Bkn1--2 to 11 inches, light gray (10YR 7/1) silt loam, dark grayish brown (2.5Y 4/2) moist, weak very thin platy structure, slightly hard, friable, very sticky and plastic, many very fine and fine roots, common very fine tubular pores, strongly effervescent, carbonates are disseminated, strongly alkaline (pH 8.8), clear smooth boundary

Bkn2--11 to 30 inches, light gray (10YR 7/1) silt loam, dark grayish brown (2.5Y 4/2) moist, weak very thin platy structure, soft, very friable, very sticky and plastic, many fine and medium roots to 24 inches, few below, violently effervescent, carbonates are disseminated, strongly alkaline (pH 8.8), abrupt smooth boundary

2Bkqm--30 to 50 inches, light gray (10YR 7/1) silt loam, dark grayish brown (2.5Y 4/2) moist, strongly cemented, strong very thick platy structure, very hard, very firm, brittle, few fine tubular pores, coatings of silica in some pores and on the surface of the pan, violently effervescent, carbonates are disseminated, strongly alkaline (pH 8.8), abrupt wavy boundary

3C--50 to 60 inches, stratified lacustrine sediments

Type location: Washoe County, Nevada, in Coleman Valley, about 2,400 feet west and 200 feet south of the northeast corner of section 13, T 47N, R 19E, (41 degrees 59 minutes 50 seconds north latitude and 119 degrees 47 minutes 55 seconds west longitude)

Range in Characteristics.

Soil moisture: Moist in winter and spring, dry mid-June through October. These soils have a perched water table at a depth of 1 to 3 feet from March through June

Soil temperature: 47 to 51 degrees F

Depth to duripan: 20 to 40 inches

Mineralogy: 30 to 60 percent glass in the silt and sand fraction

Control section

Clay content--8 to 18 percent

Bulk density--0.8 to 1.0 g/cc

Electrical conductivity--8 to 16 mmhos/cm

SAR--25 to 50

A horizon

Value--6 or 7 dry, 3 or 4 moist

Chroma--1 or 2

Bkn horizons

Hue--10YR, 2.5Y or neutral

Value--6 or 7 dry, 4 or 5 moist

Longdis Series

The Longdis series consists of very deep, well drained soils that formed in mixed lacustrine sediments influenced by volcanic ash. The Longdis soils are on lake terraces and basin rims. Slopes are 0 to 2 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Fine, montmorillonitic, mesic Xeric Natrargids

Typical pedon: Longdis silty clay loam, in map unit 1310
rangeland (Colors are for dry soil unless otherwise noted)

A1--0 to 5 inches, light brownish gray (10YR 6/2) silty clay loam, dark brown (10YR 3/3) moist, moderate very thin and thin platy structure, slightly hard, very friable, sticky and plastic, many very fine roots, many very fine vesicular pores, moderately alkaline (pH 8.0), abrupt wavy boundary

Bn1--5 to 11 inches, light brownish gray (10YR 6/2) silty clay, dark brown (10YR 3/3) moist, exp. dark yellowish brown (10YR 4/4) moist, crushed, strong fine and medium prismatic structure parting to strong fine and medium subangular blocky, very hard, firm, very sticky and very plastic, many very fine and fine roots, common very fine tubular pores, many thin clay films on faces of peds and lining pores, moderately alkaline (pH 8.0), abrupt wavy boundary

Bn2--11 to 26 inches, pale brown (10YR 6/3) clay, dark grayish brown (10YR 4/2) moist, strong fine and medium prismatic structure parting to strong fine and medium angular blocky, very hard, firm, very sticky and very plastic, many very fine and fine roots, common very fine tubular pores, many thin and moderately thick clay films on faces of peds and lining pores, slightly effervescent, strongly alkaline (pH 8.6), clear wavy boundary

Bkn--26 to 45 inches, pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist, strong very fine angular blocky structure, hard, firm, very sticky and very plastic, common very fine roots, few very fine tubular pores, many thin and moderately thick clay films on faces of peds and lining pores, common fine soft masses of lime, strongly effervescent, strongly alkaline (pH 9.0), abrupt smooth boundary

2C--45 to 61 inches, light brownish gray (2.5Y 6/2) stratified silty clay and silty clay loam, grayish brown (2.5Y 5/2) moist, massive, hard and very hard, friable and firm, very sticky and very plastic, few very fine tubular pores, strongly alkaline (pH 9.0)

Type location: Washoe County, Nevada, At the north end of Long Valley, about 2,300 feet south, 450 feet west of the northeast corner of section 2, T 44N, R 19E, (41 degrees 45 minutes 52 seconds north latitude and 119 degrees 48 minutes 37 seconds west longitude)

Range in Characteristics.

Soil moisture Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature 47 to 51 degrees F

Depth to carbonates 11 to 24 inches

Control section

Clay content--40 to 50 percent

A horizon

Value--6 or 7 dry, 3 or 4 moist

Chroma--2 or 3

Reaction--Slightly alkaline or moderately alkaline

Bt₁ horizon

Value--5 through 7 dry, 3 through 5 moist

Chroma--2 through 4

Clay content--40 to 50 percent

Texture--Silty clay or clay

SAR--13 to 45

Reaction--Moderately alkaline or strongly alkaline

Bt₂ horizon

Hue--10YR or 2.5Y

Value--5 through 7 dry, 3 through 5 moist

Chroma--2 through 4

Clay content--35 to 50 percent

Texture--Silty clay, clay or silty clay loam

SAR--13 to 45

Effervescence--Slightly effervescent or strongly effervescent, few to many fine to large soft masses of lime in the lower part

Other features--Few or common fine or medium soft masses of gypsum in the lower part are in some pedons

C horizon

Hue--10YR or 2.5Y

Value--6 through 8 dry, 4 through 6 moist

Chroma--2 through 4

Texture--Usually stratified: dominantly silty clay loam, silty clay or clay, but includes strata of loam, clay loam, fine sandy loam or very fine sandy loam

Clay content--35 to 45 percent

Structure--Platy or is massive

Consistence--Hard or very hard dry, very friable through firm moist

Effervescence--Noneffervescent to violently effervescent, few or common fine to medium soft masses of lime are in some pedons

Other features--Few or common fine or medium sand mottles with chroma of 4 or 5 or soft masses of gypsum are in some pedons

Taxonomic class: Very fine, montmorillonitic, frigid Vertic Paleargids

Typical pedon: Macyflat silty clay loam, in map unit 1010 rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches, light gray (10YR 7/2) silty clay loam, dark grayish brown (10YR 4/2) moist, weak thick platy structure, slightly hard, very friable, sticky and plastic, common fine roots, common medium, many fine and very fine vesicular pores, neutral (pH 7.0), abrupt smooth boundary

A2--2 to 9 inches, light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist, massive, slightly hard, very friable, sticky and plastic, common very fine, fine and medium roots, few fine tubular and many very fine interstitial pores, neutral (pH 7.0), abrupt smooth boundary

Bt₁--9 to 15 inches, light brownish gray (10YR 6/2), crushed, clay, brown (10YR 4/3) moist, strong medium prismatic structure parting to moderate medium angular blocky, hard, very friable, very sticky and very plastic, few fine medium roots, common very fine interstitial pores, few fine and very fine tubular pores, many pressure faces, neutral (pH 7.0), abrupt smooth boundary

Bt₂--15 to 32 inches, pale brown (10YR 6/3) clay, brown (10YR 4/3) moist, strong medium prismatic structure, very hard, very firm, very sticky and very plastic, few fine and medium roots, very few fine tubular pores, many pressure faces, neutral (pH 7.0), gradual smooth boundary

Bt₃--32 to 47 inches, light yellowish brown (10YR 6/4) clay, olive brown (2.5Y 4/4) moist, with few fine distinct light olive brown (2.5Y 5/6) mottled manganese stains, strong fine angular blocky structure, very hard, very firm, very sticky and very plastic, very few roots, very few fine tubular pores, many pressure faces, slightly alkaline (pH 7.6), abrupt smooth boundary

2C1--47 to 49 inches, white (10YR 8/1) loamy sand, light gray (10YR 7/1) moist, massive, hard, very friable, nonsticky and nonplastic, slightly alkaline (pH 7.8), abrupt smooth boundary

2C2--49 to 60 inches, light gray (2.5Y 7/2) loamy fine sand, light brownish gray (2.5Y 6/2) moist, common fine prominent brownish yellow (10YR 6/8) mottles, massive, slightly hard, very friable, nonsticky and nonplastic, common very fine interstitial pores, moderately alkaline (pH 8.2)

Type location: Washoe County, Nevada, approximately 150 feet south of the Oregon state line and 150 feet east of road line in Macy Flat, about 2,500 feet west and 150 feet south of the northeast corner of section 17 and the Oregon state line, T. 47 N., R. 21 E., (41 degrees, 59 minutes, 44 seconds north latitude and 119 degrees, 38 minutes, 41 seconds west longitude)

Range in Characteristics

Soil moisture Usually dry, moist in winter and spring, dry in summer and fall. Saturated below 5 feet in most years, in the early spring. Aridic moisture regime bordering on Xeric.

Macyflat Series

The Macyflat series consists of very deep, moderately well drained soils that formed in lacustrine deposits mainly from volcanic rocks. The Macyflat soils are on interplateau basins. Slopes are 0 to 2 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 43 degrees F.

Soil temperature 43 to 47 degrees F

Depth to base of Bt horizon 30 to 60 inches

Control section

Clay content--60 to 70 percent

Other features--Linear extensibility is 6 centimeters or more

A horizons

Value--6 or 7 dry, 3 through 5 moist

Reaction--Slightly acid to slightly alkaline

Bt1 and Bt2 horizons

Value--5 or 6 dry, 3 through 5 moist

Chroma--3 or 4, may be 2 in Bt1 horizon

Clay content--60 to 70 percent

Structure--Prismatic or columnar sometimes parting to angular blocky

Consistence--Very hard or extremely hard dry, may be hard in Bt1 horizon

Reaction--Slightly acid to slightly alkaline

Other features--Common to many pressure faces

Bt3 horizon:

Hue--10YR or 2.5Y moist

Value--5 or 6 dry, 3 through 5 moist

Chroma--3 or 4

Clay content--60 to 70 percent

Structure--Angular blocky, some pedons have prismatic parting to angular blocky

Consistence--Very hard or extremely hard dry

Reaction--Slightly acid to slightly alkaline

Other features--Common to many pressure faces

2C horizons

Hue--10YR or 2.5Y

Texture--Loamy sand or loamy fine sand

Clay content--0 to 10 percent

Reaction--Mildly alkaline to strongly alkaline

Other features--This layer when present is dominated by volcanic ash

slightly sticky and slightly plastic, few very fine and fine roots, many very fine interstitial pores, 20 percent cobbles and 30 percent pebbles, neutral (pH 7.0), clear wavy boundary

A2--2 to 6 inches, dark gray-sh brown (10YR 4/2) clay loam, very dark brown (10YR 2/2) moist, weak very fine and fine subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, many very fine and fine roots, many very fine tubular pores, 10 percent pebbles, neutral (pH 7.2), clear wavy boundary

Bt1--6 to 14 inches, dark brown (10YR 4.3, gravelly clay, dark brown (10YR 3/3) moist, strong fine and medium subangular blocky structure, hard, very friable, sticky and very plastic, common very fine and few fine roots, many very fine tubular pores, many moderately thick clay films on faces of peds and in pores, 25 percent pebbles, neutral (pH 7.2), clear wavy boundary

Bt2--14 to 19 inches, yellowish brown (10YR 5/4, gravelly clay, brown (10YR 4/3) moist, strong fine and medium subangular blocky structure, hard, friable, very sticky and very plastic, common very fine and fine roots, many very fine tubular pores, 25 percent pebbles, many moderately thick clay films on faces of peds and in pores, neutral (pH 7.2), abrupt smooth boundary

R--19 to 23 inches, hard basalt

Type location: Washoe County, Nevada, about 400 feet east and 2,350 feet south of the northwest corner of section 18 T 43 N R 19 E (41 degrees, 38 minutes 58 seconds north latitude and 119 degrees, 54 minutes, 16 seconds west longitude)

Range in Characteristics

Soil moisture Usually dry, moist in winter and spring, dry in summer and fall

Soil temperature 43 to 47 degrees F

Mollic epipedon thickness 7 to 15 inches and includes part or all of argillic horizon

Depth to bedrock 10 to 20 inches

Other features 4 to 8 inch thick BA horizons present in some pedons

Control section

Clay content--35 to 60 percent

Rock fragments--5 to 35 percent

A horizons

Hue--5YR through 10YR moist and dry

Value--4 or 5 dry, 2 or 3 moist. A thin subhorizon may be 6 dry and 4 moist

Chroma--1 through 3 dry and moist

Reaction--Slightly acid to slightly alkaline

Bt1 horizons

Hue--5YR through 10YR moist and dry

Value--3 through 5 dry

Chroma--2 or 3 moist and dry

Texture--Sandy clay loam, sandy clay or clay loam with 25 to 40 percent clay

Structure--Weak to strong, prismatic, subangular or angular blocky

Consistence--Slightly hard to hard dry

Reaction--Slightly acid to slightly alkaline

Madeline Series

The Madeline series consists of shallow, well drained soils that formed in residuum and colluvium from basalt, tuff and andesite. Madeline soils are on summits, crests, shoulders, and side slopes of plateaus, hills, and mountains. Slopes are 4 to 30 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 42 degrees F.

Taxonomic class: Clayey montmorillonitic frigid Lithic Argixerolis

Typical pedon: Madeline very cobbly loam, in map unit 1375 rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is covered with 20 percent cobbles and 30 percent pebbles.

A1--0 to 2 inches, gray-sh brown (10YR 5/2) very cobbly loam, very dark brown (10YR 2/2) moist, moderate thin and medium platy structure, slightly hard, friable

Bt2 horizons

Hue--5YR through 10YR moist and dry
 Value--3 through 6 dry, 3 or 4 moist
 Chroma--2 through 4 dry and moist
 Texture--Clay, sandy clay or clay loam with 35 to 60 percent clay
 Rock fragments--5 to 35 percent, cobbles, stones and pebbles
 Structure--Weak to strong, prismatic, subangular or angular blocky
 Consistence--Hard to extremely hard dry, friable to very firm moist
 Reaction--Slightly acid to slightly alkaline

Mahala Series

The Mahala series consists of moderately deep, well drained soils that formed in a thin loess mantle over residuum from tuff. Mahala soils are on side slopes of rock pediment remnants, plateau summits, hills and rock core areas of fan piedmont remnant side slopes. Slopes are 0 to 8 percent. The mean annual temperature is about 47 degrees F and the mean annual precipitation is about 11 inches.

Taxonomic class: Fine montmorillonitic, mesic Vertic Paleargids

Typical pedon: Mahala very cobbly silt loam, in map unit 1095 range and (Colors are for dry soil unless otherwise noted.) The soil surface is covered with 30 percent cobbles and 20 percent pebbles.

A1--0 to 3 inches, light brownish gray (10YR 6/2) very cobbly silt loam, very dark grayish brown (10YR 3/2) moist, moderate thin and medium platy structure, slightly hard, very friable, sticky and plastic, many very fine roots, many very fine vesicular pores, 30 percent cobbles and 20 percent pebbles, neutral (pH 7.3), clear wavy boundary.

A2--3 to 7 inches, thick brown (10YR 5/3) cobbly silt loam, very dark grayish brown (10YR 3/2) moist, moderate very fine and fine subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine and common fine roots, many very fine tubular pores, 10 percent cobbles, 15 percent pebbles, neutral (pH 7.3), abrupt wavy boundary.

2Bt1--7 to 10 inches, brown (10YR 5/3) gravelly clay, dark brown (10YR 4/3) moist, strong fine and medium subangular blocky structure, very hard, very friable, very sticky and very plastic, common very fine and fine and few medium roots, many very fine tubular pores, common thin and few moderately thick dark grayish brown (10YR 4/2) clay films, very dark brown (10YR 2/2) moist on faces of peds and in pores, 20 percent pebbles, many pressure faces, slightly alkaline (pH 7.6), abrupt wavy boundary.

2Bt2--10 to 19 inches, brown (10YR 5/3) clay, dark yellowish brown (10YR 4/4) moist, strong medium prismatic structure parting to strong medium and coarse angular blocky, very hard, firm, very sticky and very plastic, common very fine and few fine roots, few

very fine tubular pores, many thin and moderately thick clay films on faces of peds and in pores, many pressure faces, slightly alkaline (pH 7.6), clear wavy boundary.

2Btk--19 to 23 inches, light yellowish brown (10YR 6/4) gravelly clay, yellowish brown (10YR 5/4) moist, moderate fine and medium angular blocky structure, very hard, firm, very sticky and very plastic, common very fine roots, few very fine tubular pores, 15 percent pebbles, many moderately thick clay films coating sand grains and on faces of peds, lime is disseminated, slightly effervescent, slightly alkaline (pH 7.8), abrupt wavy boundary.

2Cr--23 to 27 inches, very pale brown (10YR 8/3) weathered tuff, light yellowish brown (10YR 6/4) moist, thick platy in upper 2 inches, strongly effervescent, lime coats on some plates, many very fine roots, a horizontal mat at upper boundary, common thin and moderately thick clay films on plates in upper 2 inches.

Type location: Washoe County, Nevada, about 700 feet south and 1,200 feet east of the northwest corner of section 35 T 43 N R 18 E (41 degrees 36 minutes 36 seconds north latitude and 119 degrees 56 minutes, 25 seconds west longitude).

Range in Characteristics

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature: 47 to 50 degrees F.

Depth to carbonates: 14 to 30 inches.

Soil thickness and depth to weathered bedrock: 20 to 40 inches.

Other features: Abrupt clay increase of 15 percent or more within a vertical distance of 1 inch or less between the A and Bt horizon. Linear extensibility is 6 centimeters or more.

Control section

Clay content--40 to 60 percent average.

Rock fragments--0 to 20 percent, mainly pebbles.

Reaction: Neutral through moderately alkaline, normally increasing with depth.

A horizons:

Value--5 through 7 dry, 3 or 4 moist.

Chroma--1 through 3.

Other features--Some pedons have thin AB horizons.

Other features--Commonly has bleached sand grains and common fine distinct iron mottles.

Bt horizons

Value--5 or 6 dry, 4 through 6 moist.

Chroma--2 through 4 dry, 3 or 4 moist.

Texture--Clay or gravelly clay.

Structure--Weak through strong, medium to coarse prismatic or columnar, weak or moderate fine to coarse subangular or angular blocky or prismatic parting to angular or subangular blocky.

Other features--Bleached sand grains commonly cap prisms. Stress surfaces are common to many, in some part of most pedons.

Btk horizon:

Value--6 or 7 dry, 5 or 6 moist.

Chroma--2 through 4

Texture--Clay or clay loam with gravelly clay loam, or silty clay loam common in some pedons

Reaction--Slightly alkaline or moderately alkaline

Secondary lime accumulation--Disseminated but may include filaments or threads in some pedons

Cr horizon

Other features--Few or common, fine or medium lime coats or soft masses or threads on fracture planes

Effervescence--Noneffervescent to slightly effervescent, may be strongly effervescent in areas of visible carbonate accumulation

Mazuma Series

The Mazuma series consists of very deep, well drained soils that formed in alluvium and lacustrine materials from mixed rock sources. Mazuma soils are on lake plain terraces, lagoons, beach plains, alluvial flats, fan skirts, lagoons, and stream terraces. Slopes are 0 to 4 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 50 degrees F.

Taxonomic class: Coarse-loamy mixed (calcareous) mesic Typic Torriorthents

Typical pedon: Mazuma fine sandy loam, in map unit 1210, range and (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches, very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist, strong medium and thick platy structure, slightly hard, very friable, nonsticky and nonplastic, few very fine roots, many very fine and fine vesicular pores, 10 percent 2 to 5 millimeter pebbles, slightly effervescent, strongly alkaline (pH 8.8), abrupt smooth boundary.

A2--2 to 6 inches, light gray (2.5Y 7/2) fine sandy loam, dark grayish brown (10YR 4/2) moist, moderate thick platy structure, slightly hard, very friable, nonsticky and nonplastic, few fine roots, many very fine and common fine vesicular pores, slightly effervescent, strongly alkaline (pH 9.0), abrupt smooth boundary.

Bk--6 to 15 inches, light gray (10YR 7/2) fine sandy loam, dark grayish brown (10YR 4/2) moist, weak coarse subangular blocky structure, slightly hard, very friable, nonsticky and nonplastic, many very fine and fine and common medium roots, many very fine tubular pores, strongly effervescent, few fine soft masses of lime, strongly alkaline (pH 9.0), clear smooth boundary.

C1--15 to 28 inches, light gray (2.5Y 7/2) fine sandy loam and sandy loam, olive brown (2.5Y 4/3) moist, massive soft, very friable, slightly sticky and slightly plastic, few fine roots, common very fine tubular pores, violently effervescent, very strongly alkaline (pH 9.6), abrupt smooth boundary.

C2--28 to 36 inches, light gray (2.5Y 7/2) stratified fine sandy loam and sandy loam, olive brown (2.5Y 4/3) moist, massive soft, very friable, slightly sticky and slightly plastic, few fine roots, few very fine tubular pores, 10 percent 2 to 5 millimeter pebbles, violently

effervescent, very strongly alkaline (pH 9.6), abrupt smooth boundary.

C3--36 to 51 inches, light gray (2.5Y 7/2), stratified very fine sandy loam and sandy loam, olive brown (2.5Y 4/4) moist, massive, slightly hard, very friable, slightly sticky and slightly plastic, few very fine roots, many fine and very fine interstitial pores, violently effervescent, very strongly alkaline (pH 9.6), abrupt smooth boundary.

C4--51 to 62 inches, light gray (2.5Y 7/2) gravelly sandy loam, olive brown (2.5Y 4/4) moist, massive, slightly hard, very friable, nonsticky and nonplastic, few very fine roots, few fine tubular pores, 15 percent 2 to 5 millimeter pebbles and 5 percent 5 millimeter to 1 centimeter pebbles, violently effervescent, very strong alkaline (pH 9.6).

Type location: Washoe County, Nevada, about 0.7 miles east of the Nevada-California state line on the east side of Surprise Valley, about 75 feet east of main road on north side of trail, about 350 feet east and 650 feet north of the southwest corner of section 16, T 41 N, R 18 E (41 degrees, 28 minutes, 07 seconds north latitude and 119 degrees, 59 minutes, 04 seconds west longitude.)

Range in Characteristics.

Soil moisture: Usually dry, moist for short periods in the winter and spring, dry from summer to mid fall.

Soil temperature: 53 to 57 degrees F.

Control section

Clay content--5 to 15 percent

Rock fragments--A few strata have up to 25 percent pebbles.

A horizons.

Hue--10YR or 2.5Y

Value--5 through 7 dry, 4 through 6 moist

Chroma--2 through 4

Reaction--Moderately alkaline to very strongly alkaline

Electrical conductivity--0 to 4 millimhos

SAR--1 to 5

Bk horizon:

Hue--10YR or 2.5Y

Value--5 through 7 dry, 4 through 6 moist

Chroma--2 through 4

Structure--Subangular blocky or it is massive

Electrical conductivity--4 to 16 millimhos

SAR--13 to 45

Other features--Less than 3 percent calcium carbonate equivalent

Consistence--Slightly hard or hard, dry

C horizons:

Hue--10YR or 2.5Y

Value--5 through 7 dry, 4 through 6 moist

Chroma--2 through 4

Texture--Stratified sandy loam, fine sandy loam, very fine sandy loam and silt loam with some pedons containing thin strata of clay loam and strata up to 12 inches thick of coarse sand, very coarse sand, fine sand or loamy sand.

Reaction--Moderately alkaline to very strongly alkaline
 Electrical conductivity--4 to 16 millimhos
 SAR--13 to 45
 Segregated lime--Few fine or medium calcium carbonate concretions may be in any horizon
 Unconformable material--Lacustrine silts and clays occur below 40 inches in some pedons
 Other features--Salt crystals and relict mollies are in some pedons in the lower C horizon
 Structure--Subangular blocky platy or is single grain or massive
 Consistence--Soft or slightly hard, dry or is loose

McConnel Series

The McConnel series consists of very deep, somewhat excessively drained soils that formed in alluvium from mixed rock sources with a component of loess and volcanic ash over lacustrine beach sediments or gravelly alluvium. McConnel soils are on inset fans, fan aprons, beach plains, beach terraces, fan skirts, drainage channels, barrier bars, and offshore bars. Slopes are 2 to 8 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 50 degrees F.

Taxonomic class: Sandy-skeletal, mixed, mesic Xeric Haplocambids

Typical pedon: McConnel, gravelly fine sandy loam, in map unit 1121, rangerland. (Colors are for dry soil unless otherwise noted.)

- A1--0 to 2 inches, light brownish gray (2.5Y 6/2) gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist, weak thick platy structure, slightly hard, very friable, nonsticky and nonplastic, common very fine roots, many very fine and fine vesicular pores, 20 percent pebbles, neutral (pH 7.0), abrupt smooth boundary.
- A2--2 to 5 inches, light brownish gray (10YR 6/2) gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist, weak medium platy structure, slightly hard, very friable, nonsticky and nonplastic, many very fine and fine roots, many very fine and fine interstitial pores, 20 percent pebbles, neutral (pH 7.0), clear smooth boundary.
- Bw--5 to 16 inches, light brownish gray (10YR 6/2) fine sandy loam, dark brown (10YR 4/3) moist, weak very fine subangular blocky structure, slightly hard, very friable, nonsticky and nonplastic, many very fine and fine roots, many very fine and fine interstitial pores, 5 percent pebbles, slightly alkaline (pH 7.6), clear wavy boundary.
- 2Bk1--15 to 20 inches, grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist, massive, soft, very friable, nonsticky and nonplastic, many very fine and fine roots, many very fine and fine interstitial pores, common very thin lime coatings on the underside of pebbles, slightly effervescent, 50 percent pebbles, moderately alkaline (pH 8.0), clear wavy boundary.
- 3Bk2--20 to 30 inches, grayish brown (10YR 5/2) extremely gravelly coarse sand, dark gray (10YR 4/1)

moist, single grain, loose, nonsticky and nonplastic, few fine roots, many very fine and fine, and few medium interstitial pores, continuous lime coatings on the undersides, and some fine on the top and sides of pebbles, 75 percent pebbles, violently effervescent, strongly alkaline (pH 9.0), clear wavy boundary.

4C--30 to 60 inches, grayish brown (10YR 5/2) coarse, stratified coarse sand and gravel, dark grayish brown (10YR 4/2) moist, many very dark gray (10YR 3/1) white (10YR 8/1) and brown (10YR 4/3) pebbles and sand grains, single grain, loose, nonsticky and nonplastic, few fine roots, many very fine and fine, and few medium interstitial pores, slightly effervescent, strongly alkaline (pH 9.0).

Type location: Washoe County, Nevada, about 0.25 miles east of the Nevada-California state line on the east side of Surprise Valley, about 1,400 feet east and 2,600 feet south of the northwest corner of section 17 T 42 N R 18 E (41 degrees 33 minutes 38 seconds north latitude and 119 degrees 59 minutes 34 seconds west longitude.)

Range in Characteristics

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature: 50 to 54 degrees F.

Depth to 2Bk1 horizon: 10 to 20 inches.

Control section:

Clay content--Averages up to 5 percent.

Rock fragments--Averages 50 to 80 percent, mainly pebbles.

A horizons

Hue--10YR or 2.5Y.

Value--5 or 6 dry, 3 or 4 moist (5 dry and 3 moist only in the upper 3 inches).

Chroma--1 through 3.

Reaction--Neutral to moderately alkaline.

Bw horizon

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 through 5 moist.

Chroma--2 through 4 (1 if dark sand grains are present).

Texture--Loam, sandy loam, fine sandy loam.

Structure--Very fine to medium granular or subangular blocky or it is massive.

Reaction--Neutral to moderately alkaline.

Bk and C horizons

Hue--10YR or 2.5Y.

Value--5 through 7 dry, 3 through 6 moist.

Chroma--2 through 4 (1 if dark sand grains are present).

Texture--Stratified, very gravelly sandy loam to extremely gravelly coarse sand.

Structure--Single grain or massive, subangular or blocky in subhorizons of some pedons.

Consistence--Loose to slightly hard, dry, loose to friable moist.

Reaction--Slightly alkaline to very strongly alkaline.

Calcium carbonate equivalent--Less than 5 percent

McWatt Series

The McWatt series consists of deep, somewhat excessively drained soils that formed in mixed alluvium. The McWatt soils are on beach terraces. Slopes are 8 to 30 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Sandy-skeletal mixed mesic Xeric Haplocambids.

Typical pedon: McWatt extremely stony fine sandy loam in map unit 1135, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 4 inches, pale brown (10YR 6/3) extremely stony fine sandy loam, dark brown (10YR 3/3) moist, moderate thin and medium platy structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine roots, many very fine and fine vesicular pores, 15 percent stones, 20 percent cobbles and 30 percent pebbles, neutral (pH 6.8), clear wavy boundary.

A2--4 to 10 inches, light brownish gray (10YR 5/2), extremely cobbly fine sandy loam, dark brown (10YR 3/3) moist, strong medium subangular blocky structure, slightly hard, very friable, sticky and slightly plastic, many very fine and common fine roots, many very fine tubular pores, 15 percent stones, 20 percent cobbles and 30 percent pebbles, neutral (pH 7.2), clear wavy boundary.

Bw--10 to 20 inches, pale brown (10YR 6/3) extremely gravelly fine sandy loam, dark brown (10YR 3/3) moist, weak coarse subangular blocky structure, slightly hard, very friable, nonsticky and nonplastic, many very fine, common fine and medium roots, many very fine interstitial pores, 3 percent stones, 20 percent cobbles and 50 percent pebbles, neutral (pH 7.2), clear regular boundary.

2Cqk1--20 to 25 inches, light yellowish brown (10YR 6/4) extremely cobbly loamy sand, brown (10YR 4/3) moist, massive, soft, very friable, nonsticky and nonplastic, many very fine and fine, common medium and few coarse roots, many very fine interstitial pores, 10 percent stones, 35 percent cobbles and 40 percent pebbles, 30 percent of underside of rock fragments have less than 0.5 millimeter thick lime and silica coats, slightly alkaline (pH 7.6), clear irregular boundary.

2Cqk2--25 to 44 inches, light yellowish brown (10YR 6/4) extremely gravelly sand, brown (10YR 4/3) moist, massive, soft, very friable, nonsticky and nonplastic, common very fine and fine, few medium and coarse roots, many very fine interstitial pores, 5 percent stones, 15 percent cobbles and 50 percent pebbles, 60 percent of underside of rock fragments have less than 0.5 millimeter thick lime and silica coats, slightly alkaline (pH 7.6), abrupt irregular boundary.

R--44 to 53 inches, Hard massive vesicular basalt with silica and lime coats in some fractures.

Type location: Washoe County, Nevada. About 3.5 miles south of Road 8A along power line in Long Valley in an unsectioned area, T 42 N., R 20 E., (41 degrees 31 minutes, 59 seconds north latitude and 119 degrees 44 minutes, 32 seconds west longitude).

Range in Characteristics:

Soil moisture: Moist in winter and spring; dry from mid-June through October.

Soil temperature: 47 to 53 degrees F.

Depth to sandy-skeletal layer: 15 to 26 inches.

Depth to bedrock: 40 to 60 inches.

Control section--Clay content: 2 to 8 percent.

Rock fragments: 60 to 75 percent stones, cobbles and pebbles, when mixed.

Depth to secondary lime accumulation: 17 to 29 inches. Lime accumulation occurs as coatings on rock fragments.

A horizons

Hue: 10YR or 2.5Y.

Reaction: Neutral or slightly alkaline.

Organic matter: 1 to 2 percent.

Bw horizon:

Value: 6 or 7 dry, 3 through 5 moist.

Chroma: 3 or 4.

Clay content: 8 to 15 percent.

Texture: Extremely gravelly fine sandy loam or very gravelly sandy loam.

Reaction: Neutral or slightly alkaline.

2Cqk horizons.

Value: 5 through 7 dry, 3 through 5 moist.

Chroma: 3 or 4.

Clay content: 0 to 2 percent.

Texture: Extremely cobbly or extremely gravelly sand or loamy sand.

Rock fragments: 60 to 80 percent stones, cobbles and pebbles.

Reaction: Slightly alkaline or moderately alkaline.

Effervescence: Noneffervescent matrix. Few to many less than 0.5 millimeter thick lime and silica coats on underside of rock fragments.

Calcium carbonate equivalent: 1 to 3 percent.

Menbo Series

The Menbo series consists of moderately deep well drained soils that formed in residuum and colluvium derived from volcanic rocks. The Menbo soils are on plateau shoulder slopes and side slopes. Slopes are 4 to 30 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 43 degrees F.

Taxonomic class: Clayey skeletal montmorillonitic frigid Pachic Argixerolls.

Typical pedon: Mesbo very gravelly loam, in map unit 1256, rangeand. (Colors are for dry soil unless otherwise noted.)

- A1—0 to 2 inches: brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine roots; many very fine tubular pores; 50 percent pebbles; slightly acid (pH 6.5); abrupt wavy boundary.
- A2—2 to 7 inches: dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate fine and medium subangular blocky structure; hard, very friable, sticky and plastic; many very fine and fine and common medium roots; many very fine tubular pores; 30 percent pebbles; neutral (pH 6.6); clear wavy boundary.
- 2Bt1—7 to 14 inches: dark grayish brown (10YR 4/2) very gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; hard, very friable, sticky and plastic; many very fine, common fine and few medium roots; many very fine and common fine tubular pores; 40 percent pebbles; few thin clay films on faces of peds and in pores; neutral (pH 6.8); clear wavy boundary.
- 2Bt2—14 to 21 inches: brown (7.5YR 5/3) very gravelly clay, dark brown (7.5YR 3/3) moist; moderate fine and medium prismatic structure parting to strong medium and coarse angular blocky; very hard, firm, very sticky and very plastic; common very fine and fine and few medium and coarse roots; common very fine tubular pores; many thin and moderately thick dark brown (7.5YR 4/2) clay films; dark brown (7.5YR 3/2) moist on faces of peds and in pores; 15 percent cobbles; 30 percent pebbles; neutral (pH 7.0); gradual smooth boundary.
- 2Bt3—21 to 34 inches: brown (7.5YR 5/4) very gravelly clay, dark brown (7.5YR 4/4) moist; weak fine and medium prismatic structure parting to strong medium and coarse angular blocky; very hard, firm, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; many thin and moderately thick clay films on faces of peds and in pores; 15 percent cobbles; 30 percent pebbles; neutral (pH 7.0); clear wavy boundary.
- Cr—34 to 36 inches: hard tuff.

Type location: Washoe County, Nevada, about 1,600 feet east and 1,800 feet south of the northwest corner of section 23, T 46 N, R 19 E, (41 degrees, 53 minutes, 45 seconds north latitude and 119 degrees, 49 minutes, 21 seconds west longitude.)

Range in Characteristics.

Soil moisture: Usually dry; moist in winter and spring; dry in summer and fall.

Soil temperature: 44 to 47 degrees F.

Mollic epipedon thickness: 20 to 35 inches.

Depth to bedrock: 20 to 40 inches.

Control section:

Clay content—35 to 50 percent when mixed.

Rock fragments—35 to 50 percent pebbles and cobbles.

A horizons:

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Reaction—Slightly acid or neutral

2Bt horizons

Hue—10YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 through 4

Texture—Clay loam or clay

Clay content—35 to 50 percent

Rock fragments—15 to 30 percent cobbles and 20 to 40 percent pebbles

Mesman Series

The Mesman series consist of very deep well drained soils that formed in mixed lacustrine sediments. The Mesman soils are on lake terraces. Slopes are 0 to 5 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Xeric Natrargids

Typical pedon: Mesman fine sandy loam in map unit 1115, rangeand. (Colors are for dry soil unless otherwise noted.)

- A—0 to 4 inches: light brownish gray (10YR 6/2) fine sandy loam, dark brown (10YR 4/3) moist; strong thin and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine tubular and vesicular pores; slightly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.
- Bt1—4 to 9 inches: pale brown (10YR 6/3) sandy clay loam, dark brown (10YR 4/3) moist; weak fine prismatic structure parting to strong fine and medium subangular blocky; hard, friable, sticky and plastic; few very fine and fine roots; common very fine tubular pores; many thin clay films on faces of peds and in pores; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- Bt1k—9 to 13 inches: pale brown (10YR 6/3) clay loam, dark yellowish brown (10YR 4/4) moist; strong fine and medium subangular blocky structure; hard, friable, very sticky and very plastic; few fine and medium roots; common very fine tubular pores; many moderately thick clay films on faces of peds and in pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- Bkn1—13 to 22 inches: pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; strong fine and medium subangular blocky structure; hard, friable, sticky and plastic; common fine roots; common very fine tubular pores; few thin clay films in pores and bridges; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
- Bkn2—22 to 29 inches: very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 5/3) moist; massive, slightly hard, very friable, nonsticky and nonplastic; few

very fine roots common very fine tubular pores common medium soft masses of lime violently effervescent moderately alkaline (pH 8.0) clear smooth boundary

- Bkn3- 29 to 36 inches very pale brown (10YR 7.3) silt loam dark brown (10YR 4/3) moist massive slightly hard very friable sticky and plastic few very fine roots common very fine tubular pores common medium soft masses of lime slightly effervescent moderately alkaline (pH 8.2) abrupt wavy boundary
- C- 36 to 60 inches pale brown (10YR 6/3) very fine sandy loam and loam dark brown (10YR 4/3) moist massive hard very friable slightly sticky and slightly plastic common very fine tubular pores slightly effervescent moderately alkaline (pH 8.2)

Type location: Washoe County, Nevada, in Coleman Valley near the Nevada-Oregon state line; about 600 feet west and 100 feet south of the northeast corner of section 13, T 47 N, R 19 E (41 degrees 59 minutes, 50 seconds north latitude and 119 degrees, 47 minutes, 31 seconds west longitude)

Range in Characteristics

Soil moisture Moist in winter and spring dry from mid-June through October

Soil temperature 47 to 50 degrees F

Control section

Clay content--18 to 35 percent

Sand content--25 to 50 percent, mainly very fine and fine sand

Effervescence Slightly effervescent to violently effervescent

A horizon

Value--5 thru 7 dry 3 or 4 moist

Btn and Btnk horizons

Value--5 or 6 dry 3 or 4 moist

Texture--Loam, sandy clay loam or clay loam

SAR--25 to 70

Bkn and C horizons

Value--5 through 7 dry, 3 or 4 moist

Chroma--2 or 3

Texture--Very fine sandy loam, loam or silt loam

SAR--13 to 70

Millerlux Series

The Millerlux series consists of shallow well drained soil that formed in residuum and colluvium from basalt and tuff with a minor component of loess. Millerlux soils are on the tops of basaltic plateaus. Slopes are 2 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 44 degrees F.

Taxonomic class: Clayey, montmorillonitic, frigid Lithic Xeric Haplargids

Typical pedon: Millerlux very cobbly loam in map unit 1240 rangeland (Colors are for dry soils unless otherwise noted) The soil surface is covered with 25 percent cobbles and 20 percent pebbles

A-0 to 4 inches light brownish gray (10YR 6/2) very cobbly loam dark brown (10YR 3/3) moist strong thin and medium platy structure hard very friable slightly sticky and slightly plastic many very fine roots many very fine vesicular pores 25 percent cobbles and 20 percent pebbles neutral (pH 7.0) abrupt wavy boundary

Bt1-4 to 8 inches pale brown (10YR 6/3) clay dark brown (10YR 3/3) moist strong very fine and fine angular blocky structure hard very friable very sticky and very plastic many very fine roots many very fine tubular pores many moderately thick clay films on faces of peds and in pores slightly alkaline (pH 7.6) abrupt wavy boundary

Bt2-8 to 12 inches light yellowish brown (10YR 6/4) clay dark yellowish brown (10YR 4/4) moist strong fine and medium angular blocky structure hard very friable very sticky and very plastic common very fine and few fine roots few very fine tubular pores many moderately thick brown (10YR 4/3) clay films very dark grayish brown (10YR 3/2) moist on faces of peds and in pores slightly alkaline (pH 7.6) clear wavy boundary

Btk-12 to 15 inches light yellowish brown (10YR 6/4) gravelly clay dark yellowish brown (10YR 4/4) moist strong medium angular blocky structure hard very friable very sticky and very plastic few very fine roots few very fine tubular pores common thin and moderately thick clay films on faces of peds and in pores 20 percent pebbles, lime is disseminated slightly effervescent moderately alkaline (pH 8.0) clear irregular boundary

2R-15 to 19 inches hard tuff with few thin white (10YR 8/1) lime coatings on its surface

Type location: Washoe County, Nevada about 900 feet west and 1,700 feet south of the northeast corner of section 10, T 43 N, R 18 E (41 degrees, 39 minutes, 53 seconds north latitude and 119 degrees, 55 minutes, 52 seconds west longitude)

Range in Characteristics

Soil moisture Usually dry moist in winter and spring dry in summer and fall

Soil temperature 43 to 47 degrees F

Depth to bedrock 12 to 20 inches

A horizon

Value--5 through 7 dry, 3 or 4 moist

Chroma--2 or 3

Reaction: Usually neutral or slightly alkaline but is moderately alkaline in some pedons

Bt horizons

Hue--10YR or 7.5YR

Value--5 or 6 dry 3 through 5 moist

Chroma--3 through 6, but may be 2 dry in upper part

Clay content--40 to 60 percent

Structure--Fine to coarse prismatic or angular blocky

Consistence--Hard or extremely hard, dry, firm to extremely firm, moist, sticky or very sticky and plastic or very plastic, wet
 Rock fragments--0 to 15 percent, mainly pebbles
 Reaction--Neutral to moderately alkaline

Btk horizon

Hue--10YR Or 7.5YR
 Value--5 or 6 dry, 4 or 5 moist
 Chroma--3 or 4
 Texture--Clay or clay loam
 Clay content--35 to 50 percent
 Rock fragments--10 to 30 percent, mainly pebbles
 Structure--Prismatic or angular blocky
 Reaction--Moderately alkaline to strongly alkaline

Nellspring Series

Nellspring series consists of moderately deep to duripan well drained soils formed in alluvium from volcanic rocks. The Nellspring soils are fan piedmont remnant summits. Slopes are 2 to 15 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class. Fine montmorillonitic, mesic Vertic Argiudols

Typical pedon: Nellspring very gravelly fine sandy loam in map unit 1412, rangeland (Colors are for dry soil unless otherwise noted.) The soil surface is covered with about 5 percent cobbles and 45 percent pebbles.

A--0 to 3 inches, light brownish gray (10YR 6/2) very gravelly fine sandy loam, dark grayish brown (10YR 4/2) moist, strong thick platy structure, hard, friable, nonsticky and nonplastic, few very fine roots, many very fine and fine vesicular pores, 5 percent cobbles and 45 percent pebbles, neutral (pH 7.2), abrupt wavy boundary.

Btss1--3 to 12 inches, light brown (7.5YR 6/4) clay, dark reddish brown (5YR 3/4) moist, strong fine prismatic structure parting to strong fine angular blocky, very hard, friable, very sticky and very plastic, common very fine and few medium sized roots, common very fine tubular pores, many moderate to thick clay films on faces of peds and lining pores, vertical cracks 8 millimeters to 1 centimeter wide and 3 to 4 inches apart extend from a depth of 3 to 12 inches, common slickensides, few wedge-shaped aggregates tilted 30 degrees from horizontal, neutral (pH 7.3), clear wavy boundary.

Btss2--12 to 18 inches, reddish brown (5YR 5/4) clay, yellowish red (5YR 4/6) moist, strong fine prismatic structure parting to strong fine angular blocky, very hard, friable, very sticky and very plastic, few very fine roots, common very fine tubular pores, many thin and moderately thick clay films on faces of peds and lining pores, vertical cracks 8 millimeters to 1 centimeter wide and 4 to 6 inches apart are present, few slickensides, few wedge-shaped aggregates tilted 30 degrees from horizontal, slightly alkaline (pH 7.5), clear wavy boundary.

Btk--18 to 35 inches, light brown (7.5YR 6/4) clay, oam brown (7.5YR 4/4) moist, strong fine and medium angular blocky structure, very hard, friable, sticky and plastic, few very fine roots, common very fine tubular pores, many moderately thick and thick clay films on faces of peds and lining pores, common fine soft filaments of lime, moderately alkaline (pH 8.0), abrupt wavy boundary.

Bqkm1--35 to 41 inches, strongly siliceous cemented duripan, strong thin and medium platy structure, extremely hard, extremely firm, alternate medium horizontal plates with discontinuous laminar cap, horizontal root mat at upper boundary with many very fine fine and few medium roots, 5 percent cobbles, 15 percent pebbles, violently effervescent, moderately alkaline (pH 8.3), gradual smooth boundary.

Bqkm2--41 to 60 inches, strongly siliceous and lime cemented duripan, alternating layers of strong and weakly cemented material, extremely hard and hard, extremely firm and firm, 5 percent cobbles, 15 percent pebbles, violently effervescent, moderately alkaline (pH 8.3).

Type location: Washoe County, Nevada. About 5 miles northeast of Nellie Spring Mountain and about 1 mile east of Grassy Camp, about 2,100 feet south and 1,300 feet west of the northeast corner of section 19, T. 41 N., R. 22 E. (41 degrees 27 minutes 05 seconds north latitude and 119 degrees 32 minutes, 28 seconds west longitude.)

Range in Characteristics.

Soil moisture: Moist in winter and spring, dry from July through October.

Soil temperature: 47 to 51 degrees F.

Depth to duripan: 20 to 40 inches.

Control section:

Clay content--40 to 60 percent

Rock fragments--0 to 15 percent

A horizon.

Value--6 or 7 dry, 3 or 4 moist

Chroma--2 or 3

Btss and Btk horizons

Hue--10YR, 7.5YR or 5YR

Value--4 through 6 dry, 3 or 4 moist

Chroma--4 through 6

Clay content--50 to 60 percent in the upper part, 35 to 50 percent in the lower part, when mixed, 40 to 60 percent.

Texture--Clay or clay loam

Rock fragments--0 to 15 percent

Consistence--Hard through extremely hard dry, friable through very firm moist

Reaction--Neutral or slightly acid in the upper part, slightly or moderately alkaline in the lower part

Effervescence--Noneffervescent in Bt horizons, strongly or violently effervescent in the Btk horizon with few or common fine or medium soft filaments or masses of lime in the lower part.

Other features: Vertical cracks 5 to 25 millimeters wide, few to common slickensides and wedge-shaped aggregates. A clay increase of 35 to 50 percent.

occurs with a vertical distance of 1 inch between the A and Bt horizons

Newlands Series

The Newlands series consists of deep, well drained soils that formed in residuum and local colluvium from basic rocks. Newlands soils are on mountain plateau or foothill toe and side slopes. Slopes are 4 to 50 percent. The mean annual precipitation is about 14 inches and mean annual air temperature is about 44 degrees F.

Taxonomic class: Fine loamy mixed Argic Cryoborolls

Typical pedon: Newlands stony loam, in map unit 1257 range and (Colors are for dry soil unless otherwise noted.) The soil surface is covered with 1 percent stones, 5 percent cobbles, and 15 percent pebbles.

A1--0 to 2 inches, brown (10YR 5/3) stony loam, very dark brown (10YR 2/2) moist, moderate very fine and fine subangular blocky structure, soft, very friable, slightly sticky and slightly plastic, many very fine and fine roots, many very fine interstitial pores, 1 percent stones, 5 percent cobbles and 15 percent pebbles, slightly acid (pH 6.2), clear wavy boundary.

A2--2 to 8 inches, grayish brown (10YR 5/2) gravelly loam, very dark brown (10YR 2/2) moist, moderate fine subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, many very fine and and common fine roots, many very fine tubular pores, 5 percent cobbles and 15 percent pebbles, slightly acid (pH 6.4), clear smooth boundary.

Bt1--6 to 12 inches, brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist, moderate fine and medium subangular blocky structure, slightly hard, friable, sticky and plastic, many very fine and common fine roots, many very fine tubular pores, few thin clay films on faces of peds and in pores, 10 percent pebbles, slightly acid (pH 6.4), clear wavy boundary.

Bt2--12 to 27 inches, yellowish brown (10YR 5/4) gravelly clay loam, dark brown (10YR 3/3) moist, strong fine and medium subangular blocky structure, hard, very friable, sticky and plastic, many very fine, common fine and few medium and coarse roots, many very fine tubular pores, many thin clay films on faces of peds and in pores, 20 percent pebbles, neutral (pH 7.0), clear wavy boundary.

Bt3--27 to 36 inches, light brown (7.5YR 6/4) gravelly clay loam, dark brown (7.5YR 4/4) moist, moderate coarse and medium subangular blocky structure, hard, very friable, sticky and plastic, common very fine and few fine roots, many very fine tubular pores, common moderately thick clay films on faces of peds and in pores, 20 percent pebbles, neutral (pH 7.0), clear wavy boundary.

BtC--36 to 41 inches, light brown (7.5YR 6/4) gravelly clay loam, dark brown (7.5YR 4/4) moist, moderate coarse subangular blocky structure, hard, very friable, sticky and plastic, few very fine and fine roots, many very fine tubular pores, common thin and moderately thick clay films on faces of peds and in pores, 20 percent pebbles

and 5 percent cobbles, neutral (pH 7.0), abrupt irregular boundary.

R--41 to 45 inches, hard andesite with common moderately thick clay films in some fractures in upper 2 inches.

Type location: Washoe County, Nevada, about 200 feet west and 900 feet south of the northeast corner of section 17 T. 46 N., R. 19 E., (41 degrees 54 minutes 48 seconds north latitude and 119 degrees 52 minutes, 04 seconds west longitude.)

Range in Characteristics:

Soil moisture: Usually moist, moist in winter and spring, dry in late summer and fall.

Soil temperature: MAST--41 to 45 degrees F.

Average summer soil temperature: 56 to 59 degrees F.

Thickness of mollic: 12 to 16 inches and includes part of the argillic.

Depth to bedrock: 40 to 60 inches.

Control section:

Clay content--27 to 35 percent.

Reaction--Slightly acid or neutral.

A horizons

Hue--10YR or 5YR.

Value--4 or 5 dry, 3 or 4 moist.

Chroma--1 through 3, chroma of 1 occurs only in the A1 horizon.

Bt horizons:

Hue--10YR, 7.5YR or 5YR.

Value--5 or 6 dry, 3 through 5 moist.

Chroma--3 or 4.

Texture--Clay loam or sandy clay loam modified by 5 to 35 percent pebbles and a few cobbles.

Structure--Moderate or strong, fine to coarse subangular blocky or angular blocky or weak or moderate fine or medium prismatic.

Ninemile Series

The Ninemile series consists of shallow, well drained soils that formed in residuum and colluvium from andesite, rhyolite, basalt and welded tuffs with admixtures of volcanic ash. The Ninemile soils are on hill plateau and mountain side slopes, shoulders, and summits. Slopes are 2 to 50 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 43 degrees F.

Taxonomic class: Clayey montmorillonitic frigid Lithic Argixerolls

Typical pedon: Ninemile very cobbly loam, in map unit 1180, rangeland (Colors are for dry soil unless otherwise noted.) The soil surface is covered with 20 percent cobbles and 30 percent pebbles.

A1--0 to 2 inches, dark brown (10YR 4/3), very cobbly loam, very dark grayish brown (10YR 3/2) moist, moderate thin platy structure, slightly hard, friable

slightly sticky and slightly plastic, many very fine and fine roots, many very fine interstitial pores, 25 percent cobbles, 30 percent pebbles, slightly acid (pH 6.4), abrupt smooth boundary

A2--2 to 7 inches, dark brown (10YR 4/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist, moderate thin platy structure, slightly hard, friable, slightly sticky and slightly plastic, many very fine and fine roots, many very fine interstitial pores, 35 percent pebbles and 20 percent cobbles, slightly acid (pH 6.4), abrupt smooth boundary

Bt1--7 to 11 inches, brown (10YR 5/3) gravelly clay, dark brown (10YR 3.3) moist, moderate very fine subangular blocky structure, hard, friable, very sticky and very plastic, many very fine and fine, and few medium roots, many very fine interstitial pores, continuous thin clay films on faces of peds, 30 percent pebbles and 5 percent cobbles, neutral (pH 6.8), abrupt wavy boundary

Bt2--11 to 19 inches, light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist, strong fine and medium subangular blocky structure, extremely hard, extremely firm, very sticky and very plastic, few very fine and fine roots, very few tubular pores, many thick clay films on faces of peds and in pores, neutral (pH 6.6), abrupt irregular boundary

R--19 to 23 inches, basalt

Type location: Washoe County, Nevada, about 1,500 feet east and 1,000 feet south of the northwest corner of section 28, T. 46 N., R. 19 E. (41 degrees, 53 minutes 01 second north latitude and 119 degrees, 51 minutes 42 seconds west longitude)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall

Soil temperature: 44 to 47 degrees F

Depth to bedrock: 10 to 20 inches

Mollic epipedon: 6 to 18 inches, commonly includes part or all of the argillic horizon (Mixed to 7 inches will be mollic)

Control section:

Clay content--Averages 40 to 60 percent

Rock fragments--0 to 35 percent

A horizons:

Hue--10YR or 7.5YR

Value--3 through 5 dry, 2 or 3 moist

Chroma--1 through 3

Reaction--Slightly acid to moderately alkaline

Other features--Surface 1 or 2 inches of some pedons have color value of 6 and are massive

Bt horizons:

Hue--5YR, 7.5YR or 10YR

Value--3 through 6 dry, 2 through 4 moist

Chroma--2 through 4, lower subhorizons have chroma of 6 in some pedons

Clay content--Typically 40 to 60 percent. Some subhorizons range to 35 percent

Texture--Clay or gravelly clay, but some subhorizons range to clay loam

Rock fragments--0 to 30 percent pebbles or cobbles

Structure--Moderate or strong subangular or angular blocky or prismatic. Bt3 horizons may be massive in some pedons

Reaction--Neutral to moderately alkaline

Consistence--Hard to extremely hard dry

Other features--Some pedons are slightly hard dry, friable to firm moist, sticky and plastic wet in the Bt1 horizon

R horizon:

Other features--In some pedons, where bedrock is less than 15 inches deep, the upper 1 to 3 inches of bedrock is weathered

Nitpac Series

Nitpac series consists of moderately deep to duripan well drained soils that formed in colluvium and alluvium from basalt and andesite. The Nitpac soils are on interplateau side slopes. Slopes are 2 to 15 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Fine, montmorillonitic, mesic Vertic Duxterols

Typical pedon: Nitpac very cobbly loam, in map unit 1173 (range and colors are for dry soil, unless otherwise noted). The soil surface is partially covered with 1 percent stones, 15 percent cobbles, and 20 percent pebbles.

A1--0 to 3 inches, brown (10YR 5/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist, strong thin and medium platy structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine roots, many very fine vesicular pores, 1 percent stones, 15 percent cobbles and 20 percent pebbles, neutral (pH 6.8), abrupt wavy boundary

A2--3 to 8 inches, grayish brown (10YR 5/2) very grave y loam, very dark grayish brown (10YR 3/2) moist, moderate medium and thick platy structure, slightly hard, very friable, sticky and plastic, common very fine and few fine roots, many very fine vesicular and interstitial pores, 10 percent cobbles, 30 percent pebbles, neutral (pH 7.0), abrupt wavy boundary

Bt1--8 to 14 inches, brown (7.5YR 5/3) clay, dark brown (7.5YR 3/3) moist, moderate medium prismatic structure parting to strong medium angular blocky, very hard, friable, very sticky and very plastic, common very fine and few fine, medium and coarse roots, common very fine tubular pores, many thin and moderately thick clay films on faces of peds and lining pores, vertical cracks 5 millimeters to 1 centimeter wide and 1 to 2 inches apart extend from a depth of 8 to 14 inches, few slickensides, few wedge-shaped aggregates tilted 30 degrees from horizontal, 1 percent cobbles and 10 percent pebbles, neutral (pH 7.2), abrupt wavy boundary

Bt2--14 to 21 inches, brown (7.5YR 5/4) clay, dark brown (7.5YR 4/4) moist, strong fine and medium prismatic structure parting to strong medium and coarse angular

blocky, very hard, firm, very sticky and very plastic, common, very fine and few fine roots, common, very fine tubular pores, many thin and moderately thick clay films on faces of peds and lining pores, vertical cracks 5 millimeters to 15 millimeters wide and 2 to 3 inches apart extend from a depth of 14 to 21 inches, few slickensides, few wedge-shaped aggregates tilted 30 degrees from horizontal, 10 percent pebbles, neutral (pH 7.2), clear wavy boundary.

Bt3—21 to 26 inches, light yellowish brown (10YR 5/4), gravelly clay loam, brown (7.5YR 5/4), moist, strong fine and medium angular blocky structure, very hard, friable, very sticky and very plastic, few very fine roots, common, very fine and few fine tubular pores, many thin and moderately thick clay films on faces of peds and lining pores, 20 percent pebbles, slightly alkaline (pH 7.6), abrupt wavy boundary.

Bqm—26 to 34 inches, reddish yellow (7.5YR 7/6), strongly silica cemented duripan, reddish yellow (7.5YR 6/8), moist, strong medium and thick platy structure, extremely hard, extremely firm, horizontal root mat at upper boundary with many very fine, fine and few medium roots, common, very pale brown (10YR 7/4), silica laminae on tops of plates, yellowish brown (10YR 5/4), moist, clear smooth boundary.

Cr—34 to 40 inches, fractured basalt with siliceous fractures.

Type location: Washoe County, Nevada, About 2 miles west of Long Valley and 1.5 miles northwest of Button Brush Flat in an unsectioned area, T 41 N, R 19 E (41 degrees 28 minutes, 58 seconds north latitude and 119 degrees 51 minutes, 23 seconds west longitude.)

Range in Characteristics:

Soil moisture: Moist in winter and spring, dry from mid-June through October.

Soil temperature: 47 to 51 degrees F.

Thickness of mollic: 10 to 20 inches and includes the upper part of the argillic.

Depth to duripan: 20 to 40 inches.

Depth to bedrock: 24 to 40 inches.

Control section:

Clay content—40 to 60 percent.

Rock fragments—10 to 15 percent, mainly pebbles when mixed.

A horizons

Value—5 or 6 dry, 2 or 3 moist. Value of 6 only in upper 2 inches.

Chroma—2 or 3.

Reaction—Neutral or slightly alkaline.

Bt horizons

Hue—10YR or 7.5YR.

Value—4 through 6 dry, 3 through 5 moist.

Chroma—2 through 6.

Clay content—40 to 60 percent when mixed, 45 to 60 percent in the upper part, 35 to 45 percent in the Bt3 when present.

Consistence—Hard to extremely hard dry, very friable to very firm moist.

Reaction—Neutral or slightly alkaline.

Other features: Vertical cracks 5 to 30 millimeters wide, few to common slickensides and wedge-shaped aggregates. A clay increase of 25 to 35 percent occurs within a vertical distance of 1 inch between the A and Bt horizons.

Nutzan Series

The Nutzan series consists of moderately deep, well-drained soils formed in residuum and colluvium from rhyolitic tuff and pyroclastic rocks. The Nutzan soils are on plateau shoulder and side slopes. Slopes are 4 to 30 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 44 degrees F.

Taxonomic class: Ashy-skeletal, frigid Vitric Torrandic Haploxerolis.

Typical pedon: Nutzan gravelly sandy loam, in map Unit 1279, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 10 percent pyroclastic, 10 percent obsidian, and 10 percent rhyolitic and tuff pebbles.

A1—0 to 2 inches, light brownish gray (10YR 6/2), gravelly sandy loam, dark brown (10YR 3/3), moist, weak, very thin and thin platy structure, slightly hard, very friable, nonsticky and nonplastic, many very fine roots, many very fine interstitial pores, 10 percent obsidian and 20 percent hard pyroclastic tuff and rhyolitic pebbles, neutral (pH 6.6), clear wavy boundary.

A2—2 to 10 inches, brown (10YR 5/3), gravelly sandy loam, dark brown (10YR 3/3), moist, moderate fine and medium subangular blocky structure, hard, very friable, nonsticky and nonplastic, many very fine, common fine and few medium roots, many very fine tubular pores, 10 percent obsidian and 15 percent hard pyroclastic tuff and rhyolitic pebbles, neutral (pH 6.8), clear wavy boundary.

Bw—10 to 17 inches, pale brown (10YR 6/3), gravelly sandy loam, dark brown (10YR 3/3), moist, moderate medium subangular blocky structure, hard, very friable, slightly sticky and slightly plastic, many very fine, common fine and few medium roots, many very fine tubular pores, 20 percent hard glassy vitric pyroclastic pebbles, 5 percent rhyolitic and tuff pebbles, few thin glass coats bridging mineral grains, neutral (pH 7.0), clear wavy boundary.

BC—17 to 28 inches, very pale brown (10YR 7/3), very gravelly sandy loam, dark yellowish brown (10YR 4/4), moist, weak medium and coarse subangular blocky structure, hard, very friable, slightly sticky and slightly plastic, common very fine and fine and few medium roots, many very fine tubular pores, 40 percent hard glassy vitric pyroclastic pebbles, 5 percent rhyolitic and tuff pebbles, few thin glass coats bridging mineral grains, neutral (pH 7.0), clear wavy boundary.

C—28 to 36 inches, very pale brown (10YR 7/3), extremely gravelly coarse sandy loam, yellowish brown (10YR 5/4), moist, massive, soft, very friable, nonsticky and nonplastic, common very fine and few fine roots, many very fine interstitial pores, 50 percent hard glassy vitric pyroclastic pebbles, 15 percent rhyolitic and tuff.

pebbles, 10 percent cobbles, neutral (pH 7.0), clear irregular boundary
 Cr--36 to 46 inches, highly fractured weathered glassy vitric pyroclastic rock with admixtures of rhyolitic and tuff rocks, many moderately thick glass coats, few very fine roots in some fractures

Type location: Washoe County, Nevada. On the south flank of Nut Mountain in an unsectioned area. T 42 N R 22 E, (41 degrees 34 minutes, 05 seconds north latitude and 119 degrees 27 minutes, 05 seconds west longitude)

Range in Characteristics:

Soil moisture Moist in winter and spring, dry from July through October
Soil temperature 44 to 47 degrees F
Depth to weathered bedrock 20 to 40 inches
Mollic epipedon 10 to 20 inches
Mineralogy 50 to 80 percent glass in the very fine and fine sand size throughout
Reaction Slightly acid or neutral
Control section
 Clay content--10 to 18 percent
 Rock fragments--40 to 60 percent pebbles that are dominantly hard vitric pyroclastic rocks when mixed

A horizons

Value--5 or 6 dry, 2 or 3 moist. Dry value of 6 is only in the surface 2 inches
 Chroma--2 or 3

Bw horizon:

Mue--10YR or 7.5YR
 Value--5 or 6 dry, 3 or 4 moist
 Chroma--3 or 4

BC horizon:

Value--6 or 7 dry, 3 or 4 moist
 Chroma--3 or 4

C horizon

Value--6 or 7 dry, 4 or 5 moist
 Chroma--3 or 4
 Texture--Extremely gravelly or very gravelly sandy loam or coarse sandy loam

Old Camp Series

The Old Camp series consists of shallow, well drained soils that formed in residuum and colluvium weathered from tuffs, basalt, rhyolite and andesite with a minor

component of volcanic ash. Old Camp soils are on hills, mountains, and plateaus. Slopes are 4 to 30 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Xeric Haplargids

Typical pedon: Old Camp very stony loam, in map unit 1063 Rangeland. (Colors are for dry soil, unless otherwise noted.) The soil surface is covered with 5 percent stones, 10 percent cobbles, and 20 percent pebbles.

A--0 to 2 inches, light brownish gray (10YR 6/2) very stony loam, very dark grayish brown (10YR 3/2) moist, weak medium platy structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine and fine roots, common very fine and fine vesicular pores, 5 percent stones, 10 percent cobbles and 20 percent pebbles, neutral (pH 7.0), clear wavy boundary.

Bt1--2 to 7 inches, pale brown (10YR 6/3) very cobbly clay loam, dark brown (10YR 3/3) moist, moderate very fine and fine subangular blocky structure, soft, very friable, sticky and plastic, many very fine and fine, and few medium roots, many very fine interstitial pores, common thin and moderately thick clay films on faces of peds and in pores, 30 percent pebbles and 20 percent cobbles, neutral (pH 6.8), abrupt wavy boundary.

Bt2--7 to 15 inches, brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist, moderate medium and fine subangular blocky structure, hard, friable, sticky and plastic, many very fine and fine roots, many very fine interstitial pores, common thin and moderately thick clay films on faces of peds and in pores, 3 percent stones, 30 percent cobbles and 20 percent pebbles, slightly alkaline (pH 7.6), abrupt irregular boundary.

R--15 to 19 inches, dark gray (10YR 4/1) basalt with few thin lime coats on rock surface.

Type location: Washoe County, Nevada, about 2.5 miles south of Road 8A and 3 miles southwest of Painted Point in an unsectioned area. (41 degrees 32 minutes 48 seconds north latitude and 119 degrees 43 minutes, 11 seconds west longitude.)

Range in Characteristics:

Soil moisture Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature 47 to 52 degrees F

Depth to bedrock 10 to 20 inches

Control section

 Clay content--27 to 35 percent

 Rock fragments--50 to 75 percent, dominantly cobbles and stones. The upper part has 35 to 50 percent rock fragments in some pedons.

A horizon

Value--5 through 7 dry, 3 or 4 moist

Chroma--2 or 3

Reaction--Neutral or slightly alkaline

Bt horizons

Hue--10YR to 7.5YR

Value--4 through 7 dry, 3 through 5 moist

Chroma--2 through 4

Texture--Clay loam or sandy clay loam, with subhorizons in some pedons of loam, modified by average of 50 to 75 percent rock fragments, mainly cobbles and stones

Consistence--Soft to hard dry, very friable to friable,

slightly sticky to sticky and slightly plastic to plastic

Structure--Weak to strong, coarse to fine angular or subangular blocky or massive

Reaction--Neutral or slightly alkaline in the upper part, neutral to strongly alkaline in the lower part

Effervescence--Slightly effervescent to strongly effervescent

Other features--Few to continuous lime coats on rock fragment or bedrock

Range in Characteristics*Soil moisture*--Usually dry, moist in winter and spring, dry from late June through October*Soil temperature*--44 to 47 degrees F*Average summer soil temperature*--59 to 61 degrees F*Depth to bedrock*--20 to 40 inches, but typically is 20 to 30 inches**Control section**

Clay content--18 to 27 percent when mixed

Rock fragments--35 to 50 percent, dominantly pebbles

A horizon

Value--5 or 6 dry, 3 or 4 moist

Chroma--2 or 3 dry

Reaction--Neutral or slightly alkaline

Bw1 horizon

Value--5 or 6 dry, 3 or 4 moist

Texture--Loam or clay loam

Clay content--18 to 30 percent

Rock fragments--0 to 15 percent pebbles, 0 to 5 percent cobbles

Reaction--Neutral or slightly alkaline

Bw2 horizon

Value--5 through 7 dry, 3 through 5 moist

Chroma--3 or 4 moist

Texture--Loam or clay loam

Clay content--18 to 30 percent

Rock fragments--35 to 50 percent pebbles, 0 to 15 percent cobbles

Reaction--Slightly alkaline or moderately alkaline

Other--Some pedons have a C horizon which is similar to the Bw2 horizon, but is massive

Oreneva Series

The Oreneva series consists of moderately deep, well drained soils that formed in residuum and colluvium from basalt. Oreneva soils are on plateaus. Slopes are 2 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Xeric Haplocambids

Typical pedon: Oreneva very gravelly loam, 2 to 15 percent slopes, in map unit 1070, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 40 percent pebbles.

A--0 to 2 inches, pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 3/3) moist, moderate thick platy structure, slightly hard, friable, slightly sticky and slightly plastic, common very fine roots, common very fine interstitial pores, 40 percent pebbles, neutral (pH 6.8), clear smooth boundary.

Bw1--2 to 10 inches, pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist, moderate medium subangular blocky structure, slightly hard, very friable, sticky and slightly plastic, common fine and very fine roots, common very fine interstitial pores, 10 percent pebbles, neutral (pH 7.2), clear smooth boundary.

Bw2--10 to 30 inches, light yellowish brown (10YR 6/4) very gravelly loam, yellowish brown (10YR 5/4) moist, weak coarse subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, few very fine roots, common very fine interstitial pores, 40 percent pebbles, 5 percent cobbles, slightly alkaline (pH 7.4), abrupt wavy boundary.

2R--30 to 34 inches, basalt

Type location: Washoe County, Nevada, near the Nevada-Oregon state line, about 600 feet east and 200 feet south of the northwest corner of section 16, T. 47 N., R. 21 E. (41 degrees, 59 minutes, 44 seconds north latitude and 119 degrees, 37 minutes, 59 seconds west longitude.)

Orr Series

The Orr series consists of very deep, well drained soils that formed in mixed alluvium. These soils are on alluvial fans, terraces, fan piedmont remnants, terraces, Insel fans and hill slopes. Slopes are 2 to 8 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 50 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Andic Argixerolls

Typical pedon: Orr sandy loam, in map unit 1395, pasture. (Colors are for dry soil unless otherwise noted.)

A1--0 to 3 inches, grayish brown (10YR 5/2) sandy loam, very dark brown (10YR 2/2) moist, moderate very fine and fine subangular blocky structure, slightly hard, very friable, slightly sticky and nonplastic, many very fine roots, 10 percent pebbles, slightly acid (pH 6.5), clear wavy boundary.

A2--3 to 9 inches, dark grayish brown (10YR 4/2) sandy loam, very dark brown (10YR 2/2) moist, moderate fine subangular blocky structure, slightly hard, friable.

- slightly sticky and slightly plastic, many very fine and fine roots, common very fine tubular pores, 5 percent pebbles, slightly acid (pH 6.5), clear wavy boundary.
- Bt1**--8 to 14 inches, brown (10YR 4/3) gravelly sandy clay loam, very dark gray sh. brown (10YR 3/2) moist, strong fine and medium subangular blocky structure, hard friable, sticky and plastic, common very fine and fine roots, many very fine tubular pores, common thin and few moderately thick clay films on faces of peds and in pores, 20 percent pebbles, neutral (pH 7.0), gradual, wavy boundary.
- Bt2**--14 to 27 inches, brown (10YR 5/3) gravelly sandy clay loam, dark brown (10YR 4/3) moist, moderate fine and medium subangular blocky structure, very hard firm, blocky and plastic, few fine and medium roots, many very fine tubular pores, common thin and few moderately thick clay films on faces of peds and in pores, 20 percent pebbles, neutral (pH 7.0), clear wavy boundary.
- Bt3**--27 to 44 inches, light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark brown (10YR 4/3) moist, weak medium and coarse subangular blocky structure, hard, firm, sticky and plastic, few fine and medium roots, common very fine tubular pores, common thin clay films on faces of peds and in pores, 20 percent pebbles, neutral (pH 7.2), clear boundary.
- C**--44 to 60 inches, light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist, massive, slightly hard, very friable, slightly sticky and slightly plastic, few fine and medium roots, many very fine interstitial pores, 20 percent pebbles, neutral (pH 7.2).

Type location: Washoe County, Nevada, about 1,600 feet east and 800 feet north of the southwest corner of section 20 T 44 N R 19 E (41 degrees, 42 seconds, 53 minutes north latitude and 119 degrees, 52 minutes, 50 seconds west longitude.)

Range in Characteristics:

- Soil moisture:** Usually dry, moist in the late winter and spring, dry summer and fall.
- Soil temperature:** 49 to 53 degrees F.
- Mollic epipedon:** 10 to 20 inches thick and may include the upper part of the Bt horizon.
- Thickness of argillic horizon:** 35 to 45 inches.
- Control section:**
- Clay content--18 to 25 percent
- Rock fragments--Less than 35 percent

A horizons

- Hue of 10YR or 7.5YR
- Value--4 or 5 dry
- Chroma--2 or 3

Bt horizons

- Hue--10YR or 7.5YR
- Value--5 or 6 dry
- Chroma--3 or 4
- Texture--Sandy loam, sandy clay loam or loam
- Structure--Angular blocky, subangular blocky or prismatic, or it is massive

Rock fragment--0 to 35 percent in any one horizon averages 10 to 25 percent

C horizon

- Hue--10YR or 7.5YR
- Value--6 or 7 dry, 4 through 6 moist
- Chroma--3 or 4
- Texture--Sand, loamy fine sand, sandy loam, fine sandy loam, sandy clay loam, clay loam and is gravelly or very gravelly in some pedons
- Rock fragments--Cobbles range from 0 to 5 percent pebbles range from 10 to 25 percent
- Durinodes--Are in some pedons but average less than 20 percent

Paypoint Series

The Paypoint series consists of very deep, well drained soils that formed in alluvium from mixed rock sources and influenced by volcanic ash. The Paypoint soils are on lagoons. Slopes are 0 to 2 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy over sandy or sandy-skeletal mixed, mesic Durinodic Xeric Haplarg ds

Typical pedon: Paypoint gravelly fine sandy loam in map unit 1045, range, and (Colors are for dry soil unless otherwise noted.)

- A1**--0 to 2 inches, pale brown (10YR 6/3) gravelly fine sandy loam, dark brown (10YR 3/3) moist, thick and very thick platy structure, hard, very friable, nonsticky and nonplastic, few very fine roots, many very fine and fine vesicular pores, 15 percent pebbles, slightly alkaline (pH 7.6), abrupt smooth boundary.
- A2**--2 to 5 inches, pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist, strong very thick platy structure, hard, very friable, nonsticky and nonplastic, few very fine roots, many very fine and fine vesicular pores, 15 percent pebbles, slightly alkaline (pH 7.6), abrupt smooth boundary.
- Bt**--5 to 11 inches, light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist, moderate fine and medium subangular blocky structure, hard, very friable, sticky and plastic, common very fine, few fine roots, common very fine tubular pores, common thin clay films on peds and lining pores, 5 percent pebbles, slightly alkaline (pH 7.8), clear wavy boundary.
- Bqk**--11 to 17 inches, very pale brown (10YR 7/4) loam, dark yellowish brown (10YR 4/4) moist, moderate medium platy structure, hard, friable and firm, slightly sticky and slightly plastic, few very fine and fine roots, many very fine interstitial and few very fine tubular pores, 80 percent weak discontinuous silica and lime cementation, common moderately thick silica coats bridging mineral grains, common fine horizontal soft masses of lime, violently effervescent, moderately alkaline (pH 8.0), abrupt wavy boundary.
- 2Ckq1**--17 to 25 inches, light yellowish brown (2.5Y 6/4, very gravelly loamy sand, olive brown (2.5Y 4/4) moist, massive, loose, nonsticky, nonplastic, few very fine

- roots many very fine interstitial pores, 40 percent pebbles 20 percent of underside of rock fragments have less than 1 millimeter thick silica-lime coats, violently effervescent moderately alkaline (pH 8.2), abrupt smooth boundary
- 3Ckq2 -25 to 36 inches light yellowish brown (2.5Y 6/4) very gravelly sand olive brown (2.5Y 4/4) moist, massive loose nonsticky nonplastic few very fine roots very fine interstitial pores, common thin and moderately thick silica coats bridging mineral grains, 50 percent pebbles, violently effervescent, moderately alkaline (pH 8.4) clear smooth boundary
- 4C -36 to 60 inches pale brown 10YR 6.3 gravelly fine sand dark brown (10YR 4/3) moist, massive loose, nonsticky nonplastic, few very fine roots, very fine interstitial pores 30 percent pebbles, violently effervescent moderately alkaline (pH 8.4)

Type location: Washoe County Nevada About 5 miles east of Vya Nevada on Road 8A, about 2 miles southwest of Painted Point 150 feet south of Road 8A at trail to Lone Spring (41 degrees, 34 minutes, 53 seconds north latitude and 119 degrees, 44 minutes 01 second west longitude)

Range in Characteristics.

Soil moisture Moist in winter and spring, dry from mid-June through October

Soil temperature 47 to 51 degrees F

Depth to carbonates 11 to 24 inches

Depth to contrasting layers 6 to 30 inches

Other features 35 to 55 percent glass in the very fine and fine sand size in the A, Bt, and Bqk horizons 5 to 20 percent glass in the C horizons

Control section

Clay content--18 to 25 percent

Sand content--35 to 50 percent

A horizons:

Value--5 or 6 dry 4 or 5 moist

Chroma--2 or 3

Reaction--Slightly alkaline or moderately alkaline

Bt horizon:

Value--5 or 6 dry 4 or 5 moist

Chroma--2 through 4

Texture--Loam or sandy clay loam

Clay content--18 to 25 percent

Rock fragments--0 to 10 percent, mainly pebbles

Reaction--Slightly alkaline or moderately alkaline

2Ckq1 and 3Ckq2 horizons:

Hue--10YR or 2.5Y

Value--6 or 7 dry 4 or 5 moist

Chroma--3 or 4

Structure--thin through thick platy

Clay content--0 to 2 percent

Rock fragments--35 to 50 percent pebbles

Reaction--Moderately alkaline or strongly alkaline

Effervescence--Slightly effervescent to violently effervescent few to many 0.5 millimeter to 1.0

millimeter lime coats on under side of rock fragments

4C horizon

Hue 10 YR or 2.5Y

Value 6 or 7 dry

Chroma 3 or 4

Texture--Sand fine sand or loamy sand in the fine earth fraction

Clay content--0 to 2 percent

Rock fragments--30 to 50 percent pebbles

Reaction--Moderately alkaline or strongly alkaline

Powlow Series

The Powlow series consists of shallow to duripan, well drained soils that formed in alluvium derived from volcanic rocks. The Powlow soils are on fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 45 degrees F.

Taxonomic class: Clayey montmorillonitic mesic shallow Argidic Durixerolls

Typical pedon: Powlow very gravelly loam in map unit 1431 rangeland (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with approximately 2 percent cobbles 40 percent pebbles

A1--0 to 2 inches, grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist moderate thin and medium platy structure slightly hard very friable slightly sticky and slightly plastic, many very fine roots many very fine and fine vesicular pores 2 percent cobbles 40 percent pebbles, neutral (pH 6.8) abrupt wavy boundary

A2--2 to 6 inches, grayish brown (10YR 5/2) gravelly loam dark brown (10YR 3/3) moist strong very thin and thin platy structure slightly hard friable sticky and plastic many very fine and common fine roots, many very fine vesicular pores 30 percent pebbles, neutral (pH 7.0), abrupt wavy boundary

Bt1--6 to 10 inches brown (10YR 5/3) gravelly clay loam dark brown (10YR 3/3) moist moderate fine and medium subangular blocky structure slightly hard very friable sticky and plastic common very fine and fine roots common fine tubular pores, many thin and moderately thick clay films on faces of peds and lining pores, 20 percent pebbles, neutral (pH 7.0) clear wavy boundary

Bt2--10 to 15 inches, strong brown (7.5YR 5/6), gravelly clay strong brown (7.5YR 4/6) moist moderate fine prismatic structure parting to strong fine and medium subangular blocky very hard very friable very sticky and very plastic, common very fine and few fine roots common fine tubular pores, many thin and moderately thick clay films on faces of peds and lining pores, 20 percent pebbles, slightly alkaline (pH 7.4) abrupt wavy boundary

Bqm--15 to 25 inches, pink (7.5YR 7/4) strongly silica cemented duripan yellowish brown (10YR 5/6) moist

strong thick platy structure; extremely hard; extremely firm; common very fine roots matted on plate surfaces; alternate horizontal light brown (7.5YR 6/4) 1 to 2 millimeter thick silica laminae on tops of plates; dark brown (7.5YR 4/4) moist; slightly alkaline (pH 7.8); clear smooth boundary.

Bqkm1—25 to 36 inches; reddish yellow (7.5YR 7/6); continuous strongly silica and lime cemented duripan; strong brown (7.5YR 5/6) moist; massive; extremely hard; extremely firm; common medium and large horizontal masses of lime, many less than 0.5 millimeter; lime and silica coats on underside of pebbles; weakly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bqkm2—36 to 60 inches; pink (7.5YR 8/4) strongly and weakly silica and lime cemented duripan; strong brown (7.5YR 5/6) moist; massive; very hard; extremely firm and very firm; common alternate horizontal discontinuous 0.5 to 2 millimeter silica laminae; few fine and medium horizontal lime masses; strongly effervescent; moderately alkaline (pH 8.0).

Type location: Washoe County, Nevada, near the Sheldon Antelope Refuge in an unsectioned area, T 43 N, R 22 E, (41 degrees, 37 minutes, 59 seconds north latitude and 119 degrees, 28 minutes, 45 seconds west longitude).

Range in Characteristics:

Soil moisture: Moist in winter and spring; dry mid-June through October.

Soil temperature: 47 to 51 degrees F.

Depth to duripan: 14 to 20 inches.

Control section:

Clay content—35 to 50 percent.

Thickness of mollic: 9 to 15 inches and includes the upper part of the Bt horizon.

Reaction: Neutral to moderately alkaline.

A horizons

Value—2 or 3 moist

Chroma—2 or 3

Bt horizons

Hue—7.5YR or 10YR

Value—4 through 6 dry; 3 or 4 moist

Chroma—3 through 6

Texture—Clay, gravelly clay, clay loam or gravelly clay loam.

Rock fragments—10 to 25 percent; dominantly pebblesized.

Structure—Subangular blocky, angular blocky or prismatic parting to subangular or angular blocky.

Bqkm horizons:

Hue—7.5YR or 10YR

Value—6 to 8 dry; 4 or 5 moist

Chroma—4 through 6

Raglan Series

The Raglan series consists of very deep, well drained soils that formed in loamy mixed alluvium and lacustrine materials derived from mixed rock sources with a component of loess and volcanic ash. The Raglan soils are on fan skirts, alluvial flat remnants, basin floor remnants and lake plain terraces. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 48 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Durinodic haplocambids.

Typical pedon: Raglan very fine sandy loam, in map unit 1230, range and. (Colors are for dry soil unless otherwise noted.)

A—0 to 3 inches; pale brown (10YR 6/3) very fine sandy loam; dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; slightly hard; very friable; sticky and slightly plastic; few very fine and fine roots; many very fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bw—3 to 14 inches; pale brown (10YR 6/3) sandy loam; dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; slightly hard; very friable; slightly sticky and slightly plastic; few very fine tubular pores; many very fine and fine and few medium roots; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bqk—14 to 26 inches; very pale brown (10YR 7/3) silt loam; dark grayish brown (10YR 4/2) moist; massive; slightly hard; very friable; sticky and plastic; common very fine and few fine roots; few very fine tubular pores; 40 percent hard; 5 to 15 millimeter durinodes; violently effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

2C1—26 to 33 inches; pale brown (10YR 6/3) sandy loam; dark grayish brown (10YR 4/2) moist; massive; slightly hard; very friable; sticky and plastic; many very fine and fine roots; common very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8).

3C2—33 to 41 inches; light gray (2.5Y 7/2) silty clay loam; grayish brown (2.5Y 5/2) moist; massive; soft; very friable; sticky and plastic; common very fine and fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

4C3—41 to 61 inches; light gray (2.5Y 7/2) very fine sandy loam; grayish brown (2.5Y 5/2) moist; massive; soft; very friable; slightly sticky and slightly plastic; few very fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.6).

Type location: Washoe County, Nevada, about 2,100 feet west and 1,100 feet south of the northeast corner of section 8 T 41 N, R 18 E (41 degrees, 29 minutes,

34 seconds north latitude and 119 degrees, 59 minutes, 36 seconds west longitude)

Range in Characteristics:

Soil moisture Usually dry, moist for short periods in the winter and spring, dry from summer to mid fall

Soil temperature 47 to 52 degrees F

Depth to Bqk horizon 10 to 20 inches

Reaction Mildly alkaline to very strongly alkaline, usually increasing with depth

Salt and sodium The soils are normally non-saline to slightly saline-sodic affected to a depth of 10 to 20 inches and slight to strongly affected below. Moderate or strongly saline-sodic affected phases are recognized

Textures Stratified, including loam, silt loam, very fine sandy loam, clay loam and silty clay loam, averages silt loam with more than 15 percent sand coarser than very fine sand

Other features Mineralogy is mixed, but has a strong influence from volcanic ash

Control section

Clay content--18 to 25 percent

Profile color Hue--10YR or 2.5Y

Value--6 or 7 dry, 4 or 5 moist

Chroma--2 through 4

A horizon

Effervescence--Noneffervescent to strongly effervescent

Bw horizon:

Structure--Fine to thick platy, prismatic or subangular blocky or is massive

Effervescence--Noneffervescent to strongly effervescent

SAR--13 to 30

Bqk horizon.

Durinodes--20 to 80 percent, up to 40 percent discontinuous weak silica cementation is common in any subhorizon where durinodes are present

Durinodes are hard or very hard dry, firm or very firm moist and are brittle

Consistence--Matrix is soft to hard dry and very friable or friable moist

SAR--13 to 45

2C and 3C horizons.

Hue--2.5Y or 5Y

Structure--Platy or horizon is massive

Effervescence--Slightly effervescent to violently effervescent

Other features--Lacustrine material with hue of 2.5Y or 5Y and relict mottles with reddish-hue (7.5YR or 5YR) and high chroma (4 through 6) iron stains commonly occur below depths of 24 inches. Gypsum segregations and shells from various aquatic animals are in the lacustrine material in most pedons

SAR--13 to 45

Reywat Series

The Reywat series consists of shallow, wet or somewhat excessively drained soils that formed in material weathered from basalt or similar rocks. Reywat soils are on uplands and mountains and have slopes of 4 to 75 percent. The mean annual precipitation is about 12 inches and the mean annual air temperature is about 48 degrees F.

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Argixerolls

Typical pedon: Reywat very stony loam, in map unit 1326 rangeland (Colors are for dry soil unless otherwise noted). The soil surface is partially covered with 10 percent stones, 10 percent cobbles and 20 percent pebbles.

A1--0 to 2 inches, light brownish gray (10YR 6/2) very stony loam, very dark grayish brown (10YR 3/2) moist, moderate very thin platy structure, slightly hard, very friable, slightly sticky and slightly plastic, many very fine roots, many very fine tubular pores, 10 percent stones, 10 percent cobbles, 20 percent pebbles, neutral (pH 6.6), abrupt wavy boundary.

A2--2 to 6 inches, brown (10YR 5/3) very stony loam, very dark grayish brown (10YR 3/2) moist, moderate very fine and fine subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, many very fine roots, many very fine tubular pores, 30 percent pebbles, 10 percent cobbles and 15 percent stones, neutral (pH 6.6), clear wavy boundary.

Bt1--6 to 11 inches, brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist, moderate fine and medium subangular blocky structure, hard, very friable, sticky and plastic, many very fine roots, common very fine tubular pores, common thin clay films on faces of peds and in pores, 50 percent pebbles and 5 percent cobbles, neutral (pH 6.6), clear wavy boundary.

Bt2--11 to 18 inches, brown (10YR 5.3) very gravelly clay loam, dark brown (10YR 3/3) moist, moderate medium subangular blocky structure, hard, friable, sticky and plastic, common very fine roots, common very fine tubular pores, common thin and moderately thick clay films on faces of peds and in pores, 40 percent pebbles and 10 percent cobbles, neutral (pH 6.6), abrupt irregular boundary.

R--18 to 22 inches, basalt, slightly decomposed, slightly effervescent at upper surface and in some cracks.

Type location: Washoe County, Nevada, about 100 feet east and 200 feet north of the southwest corner of section 29 T 47 N R 19 E (41 degrees, 57 minutes, 35 seconds north latitude and 119 degrees, 53 minutes, 08 seconds west longitude)

Range in Characteristics:

Soil moisture Usually dry, moist in winter and spring, dry in summer and fall

Soil temperature 47 to 54 degrees F

Average summer soil temperature 65 to 71 degrees F

Depth to bedrock 10 to 20 inches

Base saturation Greater than 75 percent throughout the entire pedon

A horizons

Hue--10YR or 7.5YR
Value--4 or 5 dry, 2 or 3 moist
Chroma--2 or 3 dry and moist
Reaction--Slightly acid to moderately alkaline

Bt horizons

Hue--10YR or 7.5YR
Value--5 or 6 dry, 2 through 4 moist
Chroma--2 or 3 dry and moist
Textures--Very gravelly or very cobbly clay loam, sandy clay loam or loam
Percent clay--24 to 35 percent
Rock fragments--35 to 70 percent
Reaction--Neutral to moderately alkaline
Effervescence--Slightly effervescent or strongly effervescent just above bedrock or in cracks in the bedrock

Saraph Series

The Saraph series consists of shallow, well drained soils that formed in residuum from soft tuffs with a minor admixture of basalt, loess and colluvium from basalt. The Saraph soils are on pediments and plateaus. Slopes are 4 to 30 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 45 degrees F.

Taxonomic class: Ashy mesic, shallow Vitrixerandic Haplargids

Typical pedon: Saraph very gravelly sandy loam, in map unit 1245, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 50 percent pebbles.

A1--0 to 2 inches, light brownish gray (10YR 6/2) very gravelly sandy loam, dark brown (10YR 3/3) moist, weak thin platy structure, soft, very friable, nonsticky and nonplastic; few very fine roots, many very fine and fine vesicular pores, 50 percent pebbles, neutral (pH 7.0), abrupt smooth boundary.

A2--2 to 4 inches, light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist, moderate very thin and thin platy structure, slightly hard, very friable, nonsticky and nonplastic, few very fine and fine roots, many very fine tubular pores, 30 percent pebbles, neutral (pH 7.0), abrupt smooth boundary.

Bt1--4 to 9 inches, pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist, moderate fine subangular blocky structure, hard, very friable, slightly sticky, and slightly plastic, common very fine and fine roots, many very fine tubular pores, few thin clay films on faces of peds and in pores, 10 percent pebbles, neutral (pH 7.0), clear wavy boundary.

Bt2--9 to 16 inches, pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist, moderate fine and medium subangular blocky structure, hard, friable

sticky and plastic, common very fine and fine roots, many very fine tubular pores, many thin clay films on faces of peds and in pores, 10 percent pebbles, neutral (pH 7.0), abrupt wavy boundary.
Cr--16 to 30 inches, soft weathered pyroclastic tuff, few thin lime coats on some fractures.

Type location: Washoe County, Nevada, about 1.4 miles southwest of Coyote Camp, about 0.2 miles south of Road 8A in an unsectioned area (41 degrees, 35 minutes, 48 seconds north latitude and 119 degrees, 32 minutes, 18 seconds west longitude.)

Range in Characteristics

Soil moisture Usually dry, moist in winter and spring, dry from late June through October.

Soil temperature 47 to 52 degrees F.

Reaction Neutral or slightly alkaline.

Depth to paralithic contact 14 to 20 inches.

Mineralogy 50 to 70 percent glass in the very fine and fine sand size throughout.

Control section

Clay content--18 to 30 percent

Rock fragments--0 to 15 percent

A horizons

Value--3 or 4 moist

Chroma--2 or 3

Bt1 horizons

Value--5 or 6 dry, 3 or 4 moist

Texture--Sandy loam or sandy clay loam

Clay content--15 to 25 percent

Rock fragments--0 to 15 percent

Bt2 horizons

Value--5 or 6 dry, 3 or 4 moist

Texture--Sandy clay loam or clay loam

Clay content--20 to 35 percent

Rock fragments--0 to 15 percent

Structure--Moderate or strong, fine or medium, angular blocky or subangular blocky.

Other features--May be slightly calcareous and have few or common lime segregations.

Schamp Series

The Schamp series consists of very deep, well drained soils that formed in mixed alluvium and colluvium from tuff, andesite and basalt with admixtures of volcanic ash. The Schamp soils are on foothills, mountain side slopes and ridges. Slopes are 4 to 50 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 48 degrees F.

Taxonomic class: Fine, montmorillonitic, mesic Xeric Haplargids

Typical pedon: Schamp very stony loam, in map unit 1220, rangeland. (Colors for dry conditions unless

otherwise noted) The soil surface is covered with 10 percent stones, 5 percent cobbles, and 15 percent pebbles.

- A**--0 to 5 inches light brownish gray (10YR 6/2) very stony loam, very dark grayish-brown (10YR 3/2) moist, moderate very thin and thin platy structure, slightly hard, very friable, slightly sticky and slightly plastic, many very fine roots, many very fine interstitial pores, 10 percent stones, 5 percent cobbles and 15 percent pebbles, neutral (pH 7.0), clear smooth boundary
- Bt1**--5 to 8 inches light brownish gray (10YR 6/2) clay loam, dark brown (10YR 3/3) moist, moderate fine subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine and few fine and medium roots, many very fine tubular pores, few thin clay films on faces of peds and in pores, neutral (pH 7.2), abrupt wavy boundary
- Bt2**--8 to 15 inches, brown (10YR 5/3) clay, dark brown (10YR 3/3) moist, moderate fine and medium subangular blocky structure, hard, friable, very sticky and very plastic, many very fine and fine and few medium roots, many very fine tubular pores, many thin and moderately thick clay films on faces of peds and in pores, neutral (pH 7.2), clear wavy boundary
- Bt3**--15 to 20 inches, brown (10YR 5/3) clay, dark brown (10YR 3/3) moist, weak fine prismatic structure parting to moderate medium subangular blocky, hard, friable, very sticky, very plastic, common very fine and fine and few medium roots, many very fine tubular pores, common thin and moderately thick clay films on faces of peds and in pores, slightly alkaline (pH 7.7), clear wavy boundary
- Btk**--20 to 32 inches, pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist, moderate coarse subangular blocky structure, hard, very friable, very sticky and very plastic, common very fine and few fine roots, common very fine tubular pores, common thin clay films on faces of peds and in pores, 10 percent pebbles, few thin lime coats on underside of pebbles, noneffervescent matrix, moderately alkaline (pH 8.2), clear wavy boundary
- Ck**--32 to 43 inches, pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist, massive, hard, very friable, sticky, plastic, common very fine and fine roots, common very fine tubular pores, 5 percent pebbles and 5 percent cobbles, few thin lime coats on underside of rock fragments, few small soft masses of lime, noneffervescent matrix, strongly alkaline (pH 8.5), clear wavy boundary
- 2C2**--43 to 60 inches, pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist, massive, slightly hard, friable, slightly sticky, slightly plastic, few fine roots, common very fine tubular pores, 25 percent cobbles and 20 percent pebbles, slightly effervescent, strongly alkaline (pH 8.9)

Type location: Washoe County, Nevada, about 1.8 miles east of the Nevada-California state line on the east side of Surprise Valley, about 1,100 feet east and 400 feet south of the northwest corner of section 15, T. 42 N., R. 18 E., (41 degrees, 34 minutes, 00 seconds north latitude and 119 degrees, 57 minutes, 45 seconds west longitude)

Range in Characteristics:

Soil moisture Usually dry, moist in winter and spring, dry in summer and fall

Soil temperature 47 to 50 degrees F

Control section

Clay content--35 to 50 percent

A horizon

Value--5 or 6 dry, 3 or 4 moist

Chroma--2 or 3

Reaction--Neutral or slightly alkaline

Bt horizons

Hue--10YR or 7.5YR

Value--5 or 6 dry, 3 or 4 moist

Chroma--2 through 4

Structure--Weak or moderate, fine to coarse prismatic, subangular blocky or angular blocky

Reaction--Neutral to moderately alkaline

Texture--Clay or clay loam

Clay content--35 to 50 percent

Rock fragments--0 to 15 percent

Thickness--24 to 32 inches

Btk horizons:

Secondary lime accumulations--Few to many fine to coarse soft masses

Effervescence--Noneffervescent or slightly effervescent matrix

C and 2C

Value--5 through 7 dry, 4 or 5 moist

Chroma--2 or 3

Texture--Sandy loam, sandy clay loam, gravelly sandy clay loam or very cobbly loam

Clay content--10 to 25 percent

Rock fragments--15 to 80 percent increasing with depth, mainly pebbles and cobbles

Reaction--Strongly alkaline or very alkaline

Effervescence--Noneffervescent to strongly effervescent in the upper part, slightly effervescent to violently effervescent in the lower part

Secondary lime accumulations--None to many fine to coarse soft masses

SAR--13 to 30 in the Bt2 and Bt3 horizons

Electrical conductivity--4 to 8 millimhos per cent meter

Skullwak Series

The Skullwak series consists of deep, poorly drained soils that formed in fine textured lacustrine sediments from mixed rock sources. These soils are on lake plains. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class. Fine, montmorillonitic (calcareous) mesic Aeric Halaquepts

Typical pedon: Sku. wak silt loam, in map unit 1050 rangeland (Colors are for dry soil unless otherwise noted.)

A—0 to 5 inches light gray (10YR 7/2) silt loam dark gray sh brown (10YR 4/2) moist, moderate very thick platy structure, soft friable, sticky and plastic, few very fine roots, many very fine vesicular pores, violently effervescent, very strongly alkaline (pH 9.4) clear smooth boundary

C—5 to 11 inches, light gray (2.5Y 7/2) silty clay loam olive brown (2.5Y 4/3) moist, moderate thin and medium platy structure, hard, friable, very sticky and very plastic, common very fine and fine roots, common very fine interstitial pores, violently effervescent, strongly alkaline (pH 9.0) clear smooth boundary

2Bqk—11 to 18 inches light gray (5Y 7/2) silty clay loam olive (5Y 4/3) moist, strong thin and medium platy structure, hard, friable, very sticky and very plastic, common very fine and fine roots, common very fine interstitial pores, 30 percent 15 to 25 millimeter durinodes, none disseminated, violently effervescent, strongly alkaline (pH 9.0) abrupt smooth boundary

3Bqk—18 to 36 inches light gray (5Y 7/2) silty clay olive (5Y 4/3) moist, strong medium and thick platy structure, hard, friable, very sticky and very plastic, common very fine and fine roots, few very fine tubular pores, 60 percent 15 to 25 millimeter durinodes, 20 percent gray sh green (5G 5/2) moist iron depletions, none disseminated, slightly effervescent, strongly alkaline (pH 8.8) clear smooth boundary

4Cg1—36 to 40 inches light gray (5Y 7/2) silty clay, olive (5Y 4/3) moist, massive hard, very friable, sticky and very plastic, few very fine roots, few very fine tubular pores, 60 percent gray sh green (5G 5/2) moist iron depletions, slightly effervescent, strongly alkaline (pH 9.0) clear smooth boundary

4Cg2—40 to 60 inches light gray (5Y 7/2) stratified silty clay loam and silty clay olive (5Y 4/3) moist, massive hard, friable, very sticky and very plastic, no roots observed, few very fine interstitial pores, 10 percent gray sh green (5G 5/2) moist iron depletions, slightly effervescent, moderately alkaline (pH 8.2)

Type location: Washoe County, Nevada, about 1.6 miles northeast of Vya, about 950 feet north and 100 feet west of the southeast corner of section 28, T. 43 N., R. 19 E. (41 degrees, 36 minutes, 54 seconds north latitude and 119 degrees, 50 minutes, 57 seconds west longitude.)

Range in Characteristics

Soil moisture: The soil is saturated year round between a depth of 18 to 36 inches.

Soil temperature: 47 to 52 degrees F

Depth to Bqk horizon: 8 to 14 inches

SAR: 31 to 45 above Bqk horizon, 13 to 30 below

Control section

Clay content: 35 to 45 percent when mixed

Reaction: Moderately alkaline to very strongly alkaline, usually decreasing with depth

Salt: Strongly affected above the Bqk horizon and

moderately affected within and below the Bqk horizon

A horizon.

Value—7 or 8 dry, 4 through 6 moist

Chroma—2 or 3

C and Bqk horizons:

Hue—10YR in the upper part and 5Y or 2.5Y in the lower part

Chroma—2 through 4 in the upper part and 1 or 2 in the lower part

Texture—Stratified silty clay loam or silty clay

Soughe Series

The Soughe series consists of shallow, well drained soils that formed in residuum and colluvium from various rocks. Soughe soils are on rock core areas of fan piedmont, remnant side slopes, hills, plateaus, mountain ridges, crests, summits, shoulders and side slopes. Slopes are 4 to 50 percent. Mean annual precipitation is about 9 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy-skeletal, mixed, mesic, lithic Xeric Haplargids

Typical pedon: Soughe very cobbly loam, in map unit 1131, rangeland (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 30 percent cobbles, 20 percent pebbles.

A—0 to 4 inches, pale brown (10YR 6/3) very cobbly loam dark brown (10YR 3/3) moist, moderate fine and medium platy structure, slightly hard, very friable, sticky and plastic, many very fine roots, common very fine vesicular, 30 percent cobbles, 20 percent pebbles, slightly alkaline (pH 7.4) clear wavy boundary

Bt1—4 to 8 inches, pale brown (10YR 6/3) very gray y clay loam dark brown (10YR 3/3) moist, fine and medium subangular blocky structure, slightly hard, very friable, sticky and plastic, common very fine and few fine and medium roots, common very fine tubular pores, common thin clay films on faces of peds and lining pores, 30 percent pebbles, 10 percent cobbles, slightly alkaline (pH 7.8) clear wavy boundary

B2—6 to 12 inches yellowish brown (10YR 5/4) very gravelly clay loam dark yellowish brown (10YR 4/4) moist, moderate fine and medium subangular blocky structure, slightly hard, very friable, sticky and plastic, few very fine, fine and medium roots, common very fine tubular pores, common moderately thick clay films on faces of peds and lining pores, 30 percent pebbles, 10 percent cobbles, slightly alkaline (pH 7.8) abrupt wavy boundary

R—17 to 21 inches hard massive tuff

Type location: Washoe County, Nevada, about 2,000 feet east and 900 feet north of the southwest corner of section 10, T. 41 N., R. 18 E. (41 degrees, 29 minutes, 01 second north latitude, 119 degrees, 57 minutes, 33 seconds west longitude.)

Range in Characteristics

Soil moisture Usually dry, moist in winter and spring, dry in summer and fall
Soil temperature 47 to 50 degrees
Depth to bedrock 10 to 20 inches
Reaction Neutral to moderately alkaline
Control section
 Clay content--25 to 35 percent
 Rock fragments--35 to 60 percent, mainly pebbles with 0 to 10 percent cobbles

A horizon:

Value--5 or 6 dry, 3 or 4 moist

Bt horizons

Value--4 through 6 dry, 3 or 4 moist
 Chroma--3 or 4
 Texture--very gray to clay loam, very gravelly sandy clay loam, or very gravelly loam
 Structure--Weak to strong, very fine to very coarse subangular blocky or moderate to strong medium angular blocky
 Consistence--Soft to hard, dry, very friable or friable, moist, sticky or very sticky and plastic or very plastic, wet

Surprise Series

The Surprise series consists of deep, well drained soils that formed in alluvium mainly from basic volcanic rocks. The Surprise soils are on alluvial fans and have slopes of 2 to 18 percent. The mean annual precipitation is about 13 inches and the mean annual temperature is about 50 degrees F.

Taxonomic class: Coarse-loamy, mixed, mesic Aridic Haploxerolls

Typical pedon: Surprise gravelly loamy sand, in map unit 1075, rangeland. (Colors are for dry soil unless otherwise noted.)

- A1--0 to 2 inches, grayish brown (10YR 5/2) gravelly loamy sand, very dark grayish brown (10YR 3/2) moist, weak very thin platy structure, soft, very friable, nonsticky and nonplastic, many fine roots, many very fine interstitial pores, 20 percent pebbles, neutral (pH 6.8), clear smooth boundary.
- A2--2 to 8 inches, brown (10YR 4/3) sandy loam, very dark grayish brown (10YB 3/2) moist, moderate medium subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, many fine roots, many very fine interstitial pores, neutral (pH 6.8), clear wavy boundary.
- Bw1--8 to 17 inches, brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist, moderate medium and coarse subangular blocky structure, hard, very friable, slightly sticky and slightly plastic, many fine roots, many fine tubular pores, 30 percent pebbles, neutral (pH 6.8), clear wavy boundary.
- Bw2--17 to 36 inches, yellowish brown (10YR 5/4) gravelly sandy loam, dark brown (10YR 4/3) moist,

weak medium and coarse subangular blocky structure, hard, very friable, slightly sticky and slightly plastic, many fine roots, many fine tubular pores, 30 percent pebbles, neutral (pH 6.8), clear smooth boundary.

C1--36 to 54 inches, light yellowish brown (10YR 6/4) gravelly sandy loam, dark grayish brown (10YR 4/2) moist, massive, hard, very friable, slightly sticky and slightly plastic, common very fine and few fine roots, many very fine interstitial pores, 30 percent pebbles, neutral (pH 6.8), clear wavy boundary.

C2--54 to 65 inches, very pale brown (10YR 7/3), stratified gravelly sandy loam and gravelly loamy sand, dark brown (10YR 4/3) moist, massive, soft, very friable, nonsticky and nonplastic, few very fine roots, many very fine interstitial pores, 40 percent pebbles, neutral (pH 6.8).

Type location: Washoe County, Nevada, about 0.3 miles northwest of Vya in an unsectioned area (41 degrees 35 minutes 35 seconds north latitude and 119 degrees, 51 minutes, 52 seconds west longitude.)

Range in Characteristics

Soil moisture Usually dry, moist in winter and spring, dry in summer and fall
Soil temperature 48 to 54 degrees F
Thickness of mollic 8 to 20 inches
Control section
 Clay content--10 to 18 percent
 Rock fragments--15 to 35 percent pebbles

A horizons:

Value--4 or 5 dry
 Chroma--2 or 3

Bw and C horizons:

Value--5 through 7 dry, 3 through 5 moist

Tinpan Series

Tinpan series are moderately deep, well drained soils that formed in colluvium and alluvium from basalt, andesite and tuff. The Tinpan soils are on plateaus. Slopes are 0 to 8 percent. The mean annual precipitation is about 14 inches and the mean annual air temperature is about 43 degrees F.

Taxonomic class: very-fine, montmorillonitic, frigid Vertic Palexerolls

Typical pedon: Tinpan extremely cobbly loam, in map unit 1181, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is covered with 40 percent cobbles and 20 percent pebbles.

- A1--0 to 2 inches, light brownish gray (10YR 6/2) extremely cobbly loam, dark brown (10YR 3/3) moist, moderate thin and medium platy structure, slightly hard, friable, sticky and plastic, many very fine roots, many very fine, common fine vesicular pores, 40 percent

- cobbles, 20 percent pebbles, neutral (pH 6.8), clear wavy boundary
- A2: 2 to 5 inches, brown (10YR 5/3) silty clay loam, very dark grayish brown (10YR 3/2) moist, moderate very fine subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine, common fine roots, many very fine interstitial pores, 10 percent pebbles, neutral (pH 6.8), abrupt wavy boundary
- Btss1: 5 to 12 inches, brown (10YR 5/3) clay, dark brown (10YR 3/3) moist, strong medium prismatic structure, extremely hard, extremely firm, very sticky and very plastic, common very fine, fine and medium vertical expd roots, common fine tubular pores, many moderately thick pressure faces on faces of peds, common thin light gray (10YR 7/2) uncoated sand grains, dark grayish brown (10YR 4/2) moist on tops of prisms, vertical cracks 5 millimeters to 15 millimeters wide and 2 to 4 inches apart extend from a depth of 5 to 18 inches, few slickensides, neutral (pH 7.0), clear wavy boundary
- Btss2: 12 to 18 inches, brown (7.5YR 5/4) clay, dark brown (7.5YR 4/4) moist, moderate medium and coarse prismatic structure parting to strong medium and coarse angular blocky, extremely hard, extremely firm, very sticky and very plastic, common very fine, fine and medium vertical expd roots, common very fine tubular pores, many moderately thick and thick clay films on faces of peds and in pores, common slickensides, few wedge-shaped aggregates tilted 30 degrees from horizontal, neutral (pH 7.2), clear smooth boundary
- Btss3: 18 to 28 inches, light brown (7.5YR 6/4) clay, brown (7.5YR 4/4) moist, moderate medium and coarse prismatic structure parting to strong medium and coarse angular blocky, very hard, firm, very sticky and very plastic, few very fine, fine and medium vertical expd roots, common very fine tubular pores, many moderately thick clay films on faces of peds and in pores, many slickensides, many wedge-shaped aggregates up to 10 centimeters in size tilted 30 degrees from horizontal, slightly alkaline (pH 7.5), clear smooth boundary
- Btkss: 28 to 36 inches, light yellowish brown (10YR 6/4) clay, brown (7.5YR 4/4) moist, strong medium and coarse angular blocky structure, very hard, friable, very sticky and very plastic, few very fine roots, common very fine tubular pores, many moderately thick and thick clay films on faces of peds and in pores, few slickensides, few wedge-shaped aggregates tilted 30 degrees from horizontal, 3 percent medium and large white (10YR 8/1) soft masses of lime, slightly effervescent matrix, moderately alkaline (pH 8.2), abrupt wavy boundary
- R: 36 to 46 inches, hard vesicular basalt, few thin lime coats at upper boundary and in some fractures

Type location: Washoe County, Nevada, 2.6 miles northeast of Barrel Springs road, about 1,500 feet west and 2,200 feet north of the southeast corner of section 9 T.46 N. R.19 E. (41 degrees, 55 minutes, 18 seconds north latitude and 119 degrees, 51 minutes, 11 seconds west longitude)

Range in Characteristics

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall

Soil temperature: 44 to 47 degrees F

Average summer soil temperature: 60 to 64 degrees F

Thickness of mollic: 10 to 16 inches

Depth to bedrock: 20 to 40 inches

Depth to carbonates: 25 to 35 inches

Control section:

Clay content—60 to 70 percent

A horizons

Value—5 or 6 dry, 2 or 3 moist, Value of 8 only in upper 2 inches, Uncoated sand grains with value of 6 or 7 dry

Chroma—2 or 3

Btss horizons

Hue—10YR or 7.5YR

Value—4 through 6 dry, 3 through 5 moist

Chroma—2 through 4

Reaction—Neutral or slightly alkaline

Other features—Vertical cracks 5 to 25 millimeters wide, few to many slickensides and wedge-shaped aggregates

Btkss horizons

Hue—10YR or 7.5YR

Value—6 or 7 dry, 4 or 5 moist

Secondary lime accumulation—Few to many small to large soft masses or few or common, lime coats on bedrock, slightly effervescent to strongly effervescent in matrix

Reaction—Slightly alkaline or moderately alkaline

Toney Series

The Toney soils are moderately deep over weathered bedrock, moderately well-drained soils that formed in material weathered from tuff. They are on tuffaceous tablelands. Slopes are 2 to 8 percent. The mean annual precipitation is about 13 inches and the mean annual air temperature is about 42 degrees F.

Taxonomic class: Fine, montmorillonitic, frigid Vertic Paleargids

Typical pedon: Toney extremely cobbly, loam, in map unit 1240, rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface has about 60 percent cover of cobbles.

A1: 0 to 2 inches, grayish brown (10YR 5/2) extremely cobbly loam, very dark grayish brown (10YR 3/2) when moist, weak thin platy structure, soft, very friable, slightly sticky and slightly plastic, few fine, and many very fine roots, many very fine interstitial and tubular pores, 60 percent cobbles, neutral (pH 6.6), abrupt smooth boundary

A2: 2 to 4 inches, light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) when moist, light

gray (10YR 6/1) spots, moderate thin platy structure slightly hard, very friable, slightly sticky and slightly plastic, few fine and many very fine roots, many very fine interstitial and tubular pores, many bleached sand grains, neutral (pH 6.6), abrupt smooth boundary.

Bt1—4 to 12 inches, brown (10YR 4/3) clay, brown (10YR 4/3) when moist, strong medium columnar structure, with a light-gray (10YR 7/1) bleached sand grain capping, extremely hard, firm, very sticky and very plastic, few fine and common very fine exp. pores, common very fine tubular pores, many pressure cutans, and many thin clay films in pores, neutral (pH 6.6), gradual smooth boundary.

Bt2—12 to 18 inches, brown (10YR 5/3) clay, brown (10YR 5/3) moist, moderate medium prismatic structure, very hard, firm, very sticky and very plastic, few fine and common very fine roots, many very fine interstitial, and common very fine tubular pores, many pressure cutans and many thin clay films in pores, neutral (pH 7.2), abrupt smooth boundary.

Btk—18 to 23 inches, brown (10YR 5/3) yellowish brown (10YR 5.4) moist, moderate fine subangular blocky structure, hard, firm, very sticky and very plastic, few very fine roots, many very fine interstitial and tubular pores, common moderately thick clay films in pores, few thin and moderately thick clay films on faces of peds, strongly effervescent, many fine white (10YR 8/2) lime veins and filaments, moderately alkaline (pH 8.2), abrupt irregular boundary.

Cr—23 to 30 inches, very pale brown (10YR 8/3) tuff, with many white (10YR 8/1) pumiceous flecks, brown (10YR 5/3) when moist, massive, very hard, very firm, few very fine roots along fracture planes, many thin brown (10YR 5.3) clay films along fractures, many faint black (10YR 2.1) coatings on fracture faces, matrix is noneffervescent with few fine lime veins and filaments along fracture planes, slightly alkaline (pH 7.8).

Type location: Washoe County, Nevada, about 1,200 feet west and 1,500 feet north of the southeast corner of section 22, T 43 N, R 18 E (41 degrees, 37 minutes, 48 seconds north latitude and 119 degrees, 56 minutes, 54 seconds west longitude).

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature: 43 to 46 degrees F.

Depth to paralithic: 20 to 40 inches.

Control section:

Upper 20 inches clay content—40 to 60 percent.

A horizons:

Value—4 through 7 dry, 2 through 4 moist.

Chroma—1 or 2.

Bt horizons:

Hue—10YR or 7.5YR.

Value—4 through 6 dry, 4 or 5 moist.

Chroma—2 through 4.

Texture—Clay or silty clay.

Structure: Columnar or prismatic in the upper part, prismatic, angular blocky or subangular blocky in the lower part.

Other features: Lime accumulation are common or many fine or medium soft masses in the Btk horizons.

Tuffo Series

The Tuffo series consists of very shallow and shallow, somewhat excessively drained soils that formed in residuum from tuff, welded tuff, and tuffaceous sandstone. Tuffo soils are on rock core areas of fan piedmont remnants and hills. Slopes are 15 to 50 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy, nonacid, mesic, shallow, Vitrandic Torriorthents.

Typical pedon: Tuffo, very gravelly sandy loam, in map unit 1410, range land. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 20 percent tuff pebbles, 10 percent pumice pebbles, and 5 percent rhyolite pebbles.

A—0 to 1 inch, gray (10YR 6/1) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist, weak thin platy structure, soft, very friable, nonsticky and nonplastic, common very fine and fine roots, many very fine interstitial pores, 35 percent tuff, pumice and rhyolitic pebbles, slightly alkaline (pH 7.6), abrupt smooth boundary.

C—1 to 8 inches, gray (10YR 6/1) gravelly sandy loam, dark grayish brown (10YR 4/2) moist, weak coarse subangular blocky structure, soft, very friable, nonsticky and nonplastic, many very fine, common fine and few medium roots, many very fine interstitial pores, 25 percent glassy vitric pyroclastic pebbles and cinders, slightly alkaline (pH 7.6), clear wavy boundary.

Cr1—8 to 30 inches, highly weathered and fractured tuffaceous sandstone, massive, few fine roots in fractures, noneffervescent matrix, common less than 0.5 millimeter lime pendants on underside of fractured pieces.

Type location: Washoe County, Nevada, about 1 mile southeast of the Stevens Camp, about 1,700 feet east and 700 feet south of the northwest corner of section 11, T 41 N, R 22 E (41 degrees, 29 minutes, 13 seconds north latitude, 119 degrees, 28 minutes, 21 seconds west longitude).

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry from late June through October. Torric moisture regime that borders on xeric.

Soil temperature: 47 to 52 degrees F.

Depth to paralithic contact: 4 to 14 inches.

Pyroclastic material: 60 to 75 percent of the 0.02 to 2 mm fraction and 30 to 60 percent of the fine earth fraction.

Control section

Clay content--5 to 15 percent
 Rock fragments--5 to 25 percent mainly pebbles
 Reaction--Neutral or slightly alkaline

A horizon:

Value--5 through 7 dry, 3 or 4 moist
 Chroma--1 through 4 dry or moist

C horizon

Hue--2.5Y or 10YR
 Value--6 or 7 dry, 4 or 5 moist
 Chroma--2 through 4 dry or moist
 Texture--Dominantly very fine sandy loam or fine sandy loam with gravelly sandy loam common in some pedons.
 Structure--Massive or is subangular blocky

Cr horizon

Secondary lime accumulation--Few or common less than 0.5 millimeter lime pendants along fracture planes
 Weathering--Highly weathered material in the upper part, to soft weathered material in the lower part

75 percent of faces of peds, slightly alkaline (pH 7.5); clear wavy boundary
 Ass. 13 to 27 inches, brown (7.5YR 5/4) clay, dark brown (7.5YR 4/4) moist, moderate coarse prismatic structure parting to moderate medium angular blocky, very hard, firm, very sticky and very plastic, few very fine, few fine and common medium roots, common very fine tubular pores, vertical cracks 10 to 20 millimeters wide and about 3 to 6 inches apart, common 10 to 25 millimeter wide wedge-shaped aggregates tilted about 30 degrees from horizontal, common intersecting slickensides, slightly alkaline (pH 7.5); clear wavy boundary
 Cr--27 to 30 inches, reddish yellow (7.5YR 7/6) soft tuff, strong brown (7.5YR 5/8) moist, weathered into medium and coarse plates in upper 2 to 3 inches with discontinuous silica coatings on underside of some plates, clear wavy boundary
 R 30 to 34 inches, hard, consolidated tuff

Type location: Washoe County, Nevada, about 1,100 feet south of Barrel Springs road along power line about 3,100 feet south and 3,600 feet west of the northeast corner of section 13, T. 46 N., R. 18 E., (41 degrees, 54 minutes, 27 seconds north latitude and 119 degrees, 55 minutes, 09 seconds west longitude)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall
Soil temperature: 4 to 50 degrees F
Depth to weathered bedrock: 20 to 35 inches
Depth to bedrock: 30 to 40 inches
Other features: Vertical cracks--are open more than 180 days
Control section
 Clay content--60 to 70 percent

A horizons:

Hue--7.5YR or 5YR
 Value--4 or 5 dry, 3 through 5 moist
 Chroma--2 through 4
 Other features--Few to many wedge-shaped aggregates and slickensides at a depth of 10 inches to bedrock. Secondary carbonates are at depths of 23 to 30 inches in some pedons

Tusune Series

The Tusune series consists of moderately deep, well drained soils that formed in residuum and colluvium from andesitic tuff and pyroclastic rocks. The Tusune soils are on north facing plateau side slopes. Slopes are 30 to 50 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 44 degrees F.

Taxonomic class: Ashy-skeletal, Vitrandic Cryoborols

Typical pedon: Tusune stony loam, in map unit 1440 rangeland (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 1

Tunnison Series

The Tunnison series consists of moderately deep, well drained soils that formed in colluvium over residuum weathered from andesite or basalt. Tunnison soils are on plateaus. Slopes are 0 to 8 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Very-fine, montmorillonitic, mesic, Aridic Haploxererts

Typical pedon: Tunnison cobbly clay, in map unit 1175 rangeland (Colors are for dry soil unless otherwise stated.) The soil surface is covered with 15 percent cobbles and 10 percent pebbles.

- A1--0 to 2 inches, dark brown (7.5YR 4/3) cobbly clay, dark brown (7.5YR 4/4) moist, strong very fine granular structure, hard, very friable, very sticky and plastic, common very fine roots, many very fine interstitial pores, 15 percent cobbles, 15 percent pebbles, slightly alkaline (pH 7.5); clear wavy boundary
 A2--2 to 5 inches, brown (7.5YR 5/4) clay, dark brown (7.5YR 4/4) moist, moderate medium and coarse prismatic structure, very hard, firm, very sticky and very plastic, common very fine, few fine and medium roots, many very fine interstitial pores, vertical cracks 10 to 30 millimeters wide and about 3 to 6 inches apart, slightly alkaline (pH 7.5); clear wavy boundary
 A3--5 to 13 inches, brown (7.5YR 5/4) clay, dark brown (7.5YR 4/4) moist, moderate medium and coarse prismatic structure parting to strong medium and coarse angular blocky, very hard, firm, very sticky and very plastic, few very fine and fine roots, common very fine tubular pores, vertical cracks 10 to 20 millimeters wide and about 3 to 6 inches apart, pressure faces on

percent stones, 2 percent cobbles, and 25 percent pebbles.

A1--0 to 2 inches brown (10YR 5/3) stony loam, very dark gray sh brown (10YR 3/2) moist, moderate very fine subangular blocky structure, soft, very friable, slightly sticky and slightly plastic, many very fine roots, many very fine interstitial pores, 1 percent stones, 2 percent cobbles and 25 percent hard tuff and rhyolitic pebbles, neutral (pH 6.6) clear wavy boundary.

A2--2 to 10 inches grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist, moderate fine and medium subangular blocky structure, soft, very friable, sticky and plastic, many very fine, common fine and few medium roots, many very fine tubular pores, 20 percent hard tuff and rhyolitic pebbles, neutral (pH 6.8) clear wavy boundary.

Bt1--10 to 26 inches brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist, strong fine and medium subangular blocky structure, hard, very friable, sticky and plastic, many very fine, common fine and few medium roots, many very fine tubular pores, 40 percent hard rhyolitic and tuff pebbles, few thin clay films on faces of peds and lining pores, neutral (pH 7.0) clear wavy boundary.

Bt2--26 to 38 inches brown (7.5YR 5/4) very gravelly clay loam, dark brown (7.5YR 4/4) moist, weak medium and coarse subangular blocky structure, hard, very friable, sticky and plastic, common very fine and fine and few medium roots, many very fine tubular pores, 30 percent cobbles and 40 percent hard rhyolitic and tuff pebbles, common thin clay films on faces of peds and lining pores, neutral (pH 7.0) abrupt irregular boundary.

Cr--38 to 46 inches, highly fractured weathered andesitic pyroclastic tuff rock, few thin glass coats, few very fine roots in some fractures.

Type location: Washoe County, Nevada. On the northeast side of Massacre Mountain in an unsectioned area T 42 N, R 21 E, (41 degrees, 31 minutes, 22 seconds north latitude and 119 degrees, 34 minutes, 02 seconds west longitude.)

Range in Characteristics.

Soil moisture: Usually moist, moist in winter and spring, dry in late summer and fall.

Soil temperature: 44 to 47 degrees F.

Average summer soil temperature: 54 to 59 degrees F.

Depth to weathered bedrock: 20 to 40 inches.

Mollic epipedon: 20 to 30 inches and includes all or part of the argillic.

Mineralogy: 50 to 80 percent glass in the very fine and fine sand size throughout.

Reaction: Slightly acid or neutral.

Control section:

Clay content--25 to 30 percent.

Rock fragments--35 to 50 percent pebbles that are dominantly hard rhyolitic and tuff rocks when mixed.

A horizons:

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Bt horizons:

Hue--10YR or 7.5YR.

Value--4 or 5 dry, 3 or 4 moist.

Chroma--3 through 4.

Texture--Loam or clay loam.

Rock fragments--35 to 50 percent, dominantly pebbles and a few cobbles of hard tuff and rhyolitic rocks.

Uhaldi Series

The Uhaldi series consists of moderately deep, well drained soils that formed in mixed colluvium from luffaceous sandstone or mudstone. Uhaldi soils are on rock pediments. Slopes are 4 to 30 percent. Mean annual precipitation is about 11 inches, and mean annual temperature is 46 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Aridic Argixerolls.

Typical pedon: Uhaldi stony loam, in map unit 1245 rangeland. (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with about 1 percent stones, 3 percent cobbles, and 30 percent pebbles.

A1--0 to 4 inches brown (10YR 5/3) stony loam, dark brown (10YR 3/3) moist, strong thin platy structure, slightly hard, very friable, slightly sticky and slightly plastic, common very fine roots, many very fine vesicular pores, 1 percent stones, 3 percent cobbles, 30 percent pebbles, slightly acid (pH 6.2) abrupt wavy boundary.

Bt1--4 to 12 inches brown (7.5YR 5.3) gravelly loam, dark brown (7.5YR 3/3) moist, moderate fine subangular blocky structure, hard, very friable, sticky and plastic, many very fine and common fine and medium roots, many very fine tubular pores, common thin clay films on faces of peds and in pores, 25 percent pebbles, slightly alkaline (pH 7.4) clear wavy boundary.

Bt2--12 to 22 inches, yellowish brown (10YR 5/4) gravelly clay loam, dark brown (7.4YR 4/4) moist, strong medium and coarse subangular blocky structure, hard, very friable, sticky and plastic, common very fine and fine and few medium roots, many very fine and common fine tubular pores, common thin and few moderately thick clay films on faces of peds and in pores, 20 percent pebbles, slightly alkaline, pH 7.6, clear irregular boundary.

Cr1--22 to 33 inches, brownish yellow (10YR 6/6) weathered luffaceous sandstone, strong brown (7.5YR 4/6) moist, strong very thick platy rock structure, many very fine roots in some fractures, few large very thin lime coats on underside of some plates, clear regular boundary.

Cr2--33 to 46 inches, white (N 8/1) weathered luffaceous sandstone, grayish brown (2.5Y 5/2) moist, fractured into 4 to 6 inch thick plates, few large very thin lime coats on underside of some plates.

Type location: Washoe County, Nevada, about 2 miles west of the Sheldon Antelope Refuge boundary along Road 8A in an unsectioned area T 43 N, R 22 E (41

degrees 37 minutes 00 seconds north latitude and
119 degrees 31 minutes 03 seconds west longitude)

Range in Characteristics:

Soil moisture Usually dry moist in winter and spring dry summer and fall

Soil temperature 47 to 50 degrees F

Mollic epipedon 12 to 16 inches thick includes the upper part of the argillic horizon

Depth to paralithic contact 20 to 40 inches

Control section

Percent clay--27 to 35 percent

Rock fragments--15 to 35 percent, mainly pebbles

A horizon

Value--4 or 5 dry 2 or 3 moist

Chroma--1 through 3

Rock fragments--0 to 35 percent cobbles and stones
15 to 35 percent pebbles

Reaction--Moderately acid through neutral

Bt horizon

Hue--10YR or 7.5YR

Value--5 or 6 dry 2 through 4 moist

Chroma--2 through 4

Reaction--Slightly acid to slightly alkaline

Texture--Loam or clay loam in the Bt1, clay loam below

Percent clay--When mixed 27 to 35 percent

Cr horizon

Other features--Bedded weathered tuffaceous sandstone or mudstone that can be dug with the spade. Roots penetrate weak fracture planes

Secondary lime accumulation--None to few very thin or thin lime coats on underside of some fracture planes or plates

Updike Series

The Updike series consist of very deep moderately well drained soils that formed in mixed alluvium. The Updike soils are on low terraces and have slopes of 0 to 2 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 50 degrees F.

Taxonomic class: Fine, montmorillonitic, mesic Typic Natrargids

Typical pedon: Updike silt loam in map unit 1310 range land (Colors are for dry soil unless otherwise noted)

A--0 to 4 inches, light gray (10YR 7/2) silt loam, dark brown (10YR 4/3) moist, strong thin and medium platy structure, slightly hard, very friable, slightly sticky and slightly plastic, few very fine roots, many very fine and fine tubular and vesicular pores, strongly effervescent, moderately alkaline, pH 8.2, abrupt wavy boundary

Bt1--4 to 9 inches, pale brown (10YR 6/3) silty clay, dark brown (10YR 4/3) moist, strong fine and medium

subangular blocky structure, hard, firm, very sticky and very plastic, few very fine and fine roots, common very fine tubular pores, many thin clay films on faces of peds and in pores, strongly effervescent, strongly alkaline (pH 8.6), clear smooth boundary

Bt2--9 to 13 inches, pale brown (10YR 6/3) silty clay loam, dark yellowish brown (10YR 4/4) moist, strong fine and medium subangular blocky structure, hard, friable, very sticky and very plastic, few fine and medium roots, common very fine tubular pores, many moderately thick clay films on faces of peds and in pores, strongly effervescent, strongly alkaline (pH 9.0), clear smooth boundary

C--13 to 22 inches, pale brown (10YR 6/3) silty clay, dark brown (10YR 4/3) moist, strong fine and medium subangular blocky structure, hard, friable, very sticky and very plastic, common few fine roots, common very fine tubular pores, few thin clay films in pores and bridges, strongly effervescent, strongly alkaline (pH 9.0), clear wavy boundary

Ck1--22 to 29 inches, very pale brown (10YR 7.5) silty clay loam, yellowish brown (10YR 5/4) moist, moderate medium subangular blocky structure, slightly hard, very friable, very sticky and very plastic, few very fine roots, common very fine tubular pores, common medium soft masses of lime, violently effervescent, strongly alkaline (pH 9.0), clear smooth boundary

Ck2--29 to 36 inches, very pale brown (10YR 7/3) silty clay loam, dark brown (10YR 4/3) moist, massive, slightly hard, very friable, very sticky and very plastic, few very fine roots, common very fine tubular pores, common medium soft masses of lime, violently effervescent, strongly alkaline (pH 9.0), abrupt wavy boundary

2C--36 to 60 inches, light gray (2.5Y 7/2) stratified clay, clay loam and sandy clay loam, light brownish gray (2.5Y 6/2) moist, massive, hard, very friable, very sticky and sticky and very plastic and plastic, common very fine tubular pores, violently effervescent, very strongly alkaline (pH 9.1)

Type location: Washoe County, Nevada, about 12 miles north of Vya at the north end of Long Valley, about 1,200 feet east and 2,400 feet south of the northwest corner of section 2 T. 44 N. R. 19 E. (41 degrees 45 minutes, 47 seconds north latitude and 119 degrees 49 minutes, 24 seconds west longitude)

Range in Characteristics:

Soil moisture Usually dry, moist for short periods in the winter and spring, dry from summer to mid fall

Soil temperature 49 to 52 degrees F

Reaction Moderately alkaline to very strongly alkaline

Effervescence Slightly effervescent to violently effervescent

A horizon:

Value--6 or 7 dry 4 or 5 moist

Chroma--2 or 3

Bt1 horizons:

Hue: 10YR or 7.5YR

Value: 5 through 7 dry 4 or 5 moist

Chroma: 2 through 4

Texture—Clay or sandy clay but includes silty clay or silty clay loam.
SAR—13 to 45

C horizons.

Hue—10YR or 2.5Y
Value—5 through 7 dry, 3 through 6 moist
Chroma—2 through 4

Valmy Series

The Valmy series consists of very deep, well drained soils that formed in a thin loess cap high in volcanic ash superimposed over loamy alluvium. The Valmy soils are on inset fans and fan skirts. Slopes are 0 to 8 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 51 degrees F.

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Haploduridic Torriorthents

Typical pedon: Valmy fine sandy loam, in map unit 1141 range and (Colors are for dry soil unless otherwise noted.)

A—0 to 2 inches, pale brown (10YR 6/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist, weak very thin platy structure, slightly hard, very friable, nonsticky and nonplastic; many very fine and few fine roots; many very fine interstitial pores, moderately alkaline (pH 8.0); abrupt wavy boundary.

C—2 to 10 inches, light gray (10YR 7/2) fine sandy loam, dark grayish brown (10YR 4/2) moist, moderate medium platy structure, hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine vesicular pores, strongly alkaline (pH 8.5); abrupt wavy boundary.

Cqk1—10 to 15 inches, light yellowish brown (10YR 6/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist, weak coarse subangular blocky structure, hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; 50 percent 0.5 to 2 inch hard, firm dunnodes; many thin silica coats bridging sand grains; few thin silica films in pores; few fine soft lime masses; slightly effervescent, strongly alkaline (pH 8.5); clear smooth boundary.

Cqk2—15 to 22 inches, light yellowish brown (10YR 6/4) fine sandy loam, dark brown (10YR 4/3) moist, massive, slightly hard, very friable, nonsticky and nonplastic; many very fine and common fine roots; many very fine tubular pores; 30 percent 0.5 to 1 inch hard, firm dunnodes that are olive brown (2.5Y 4/3) moist; lime is disseminated; strongly effervescent, strongly alkaline (pH 8.6); clear wavy boundary.

Cqk3—22 to 36 inches, light yellowish brown (10YR 6/4) sandy loam, dark brown (10YR 4/3) moist, massive, soft, very friable, nonsticky and nonplastic; common very fine and few fine and medium roots; many very fine tubular pores; 5 percent 0.5 to 2 inch hard, firm dunnodes; common thin silica films bridging mineral grains; violently effervescent; few fine white (10YR 8/2) soft masses of lime; strongly alkaline (pH 8.6); clear wavy boundary.

Ck—36 to 53 inches, light yellowish brown (10YR 6/4) stratified sandy loam and gravelly sandy loam, dark yellowish brown (10YR 4/4) moist, massive, slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine tubular pores; 15 percent pebbles; common fine and medium white (10YR 8/2) soft masses of lime; violently effervescent, strongly alkaline (pH 8.6); clear wavy boundary.

2C—53 to 60 inches, light brownish gray (2.5Y 6/2) gravelly sand, olive brown (2.5Y 4/4) moist, massive, soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 20 percent pebbles; violently effervescent, strongly alkaline (pH 9.0).

Type location: Washoe County, Nevada, at the south end of Coleman Valley, about 2.5 miles south of the Nevada-Oregon state line and 0.9 miles west of State Route 34, about 200 feet north and 400 feet east of the southwest corner of section 29 T 47 N, R 20 E, 41 degrees, 57 minutes, 35 seconds north latitude and 119 degrees, 46 minutes, 08 seconds west longitude.

Range in Characteristics:

Soil moisture: Usually dry, moist for short periods in winter and spring, dry from May through November.

Soil temperature: 47 to 53 degrees F.

Depth to Cq horizon: 6 to 20 inches. Durinodes range from 5 to 85 percent by volume in any one horizon but one or more horizons more than 6 inches thick contains more than 25 percent.

Depth to unconformity: 30 to 50 inches, with some pedons deeper than 50 inches to sandy material. Some pedons have a stratified substratum.

Control section

Clay content—5 to 15 percent

Rock fragments—0 to 30 percent, mainly pebbles

A horizon:

Hue—10YR or 2.5Y

Value—5 through 7 dry, 3 through 5 moist

Reaction—Moderately alkaline or strongly alkaline

C horizons

Hue—10YR or 2.5Y

Value—5 through 7 dry, 4 or 5 moist

Chroma—2 through 4

Texture—Mainly fine sandy loam or sandy loam, but includes strata of very fine sandy loam or coarse sandy loam in some pedons.

Dunnodes—Hard to extremely hard, very friable to very firm and brittle, nonsticky or slightly sticky and nonplastic or slightly plastic wet.

Reaction—Strongly alkaline or very strongly alkaline

Effervescence—Slightly effervescent to violently effervescent

2C horizons:

Texture—Gravelly sand or very gravelly sand; substratum phases have textures of silty clay loam below 40 inches, or are stratified very fine sandy loam to gravelly silt loam.

Clay content—1 to 18 percent

Structure--Single grained, massive or platy
 Consistence--Loose or slightly hard or hard dry
 nonsticky or sticky wet
 Rock fragments--5 to 55 percent
 Reaction--Strongly alkaline or very strongly alkaline

Verdico Series

The Verdico series consists of moderately deep, well drained soils that formed in fluvial sediments and ped sediments, residuum and colluvium from water laid tuff on plateaus and side slopes of basaltic plateaus and pediments. Slopes are 4 to 15 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 49 degrees F.

Taxonomic class: Fine montmorillonitic, mesic Vertic Paleargids

Typical pedon: Verdico very stony sandy loam, in map unit 1090 range and (Colors are for dry soil unless otherwise noted). The soil surface is covered with 10 percent stones, 10 percent cobbles, and 20 percent pebbles.

A--0 to 3 inches, pale brown (10YR 6/3) very stony sandy loam, brown (10YR 4/3) moist, moderate thin and medium platy structure, slightly hard, very friable, sticky and plastic, few fine tubular pores, common medium vesicular pores, 10 percent stones, 10 percent cobbles, 20 percent pebbles, slightly acid (pH 6.4), abrupt wavy boundary.

Bt1--3 to 13 inches, light yellowish brown (10YR 6/4) clay, yellowish brown (10YR 5/4) moist, weak medium prismatic structure parting to strong fine and medium angular blocky, hard, very friable, very sticky and very plastic, common fine and very fine and few medium roots, few very fine tubular pores, common thin grayish brown (10YR 5.1) clay films, very dark grayish brown (10YR 3/2) moist on faces of peds and in pores, 5 percent pebbles, 5 percent cobbles, neutral (pH 7.0), clear wavy boundary.

Bt2--13 to 17 inches, light yellowish brown (10YR 6/4) clay, yellowish brown (10YR 5/4) moist, moderate medium prismatic structure parting to strong fine and medium angular blocky, hard, firm, very sticky and very plastic, few fine and common medium roots, few very fine tubular pores, many thin and moderately thick clay films on faces of peds and in pores, many pressure faces, 10 percent pebbles, neutral (pH 7.0), clear wavy boundary.

2Ck--17 to 22 inches, light yellowish brown (10YR 6/4) gravelly clay, dark yellowish brown (10YR 4/4) moist, moderate very fine, fine and medium subangular blocky structure, hard, very friable, very sticky and very plastic, few fine and medium roots, few very fine tubular pores, few fine soft masses of lime, 25 percent pebbles, slightly effervescent, slightly alkaline (pH 7.5), gradual wavy boundary.

Cr--22 to 26 inches, white (10YR 8/2) weathered tuff, very pale brown (10YR 7/4) moist, very thick platy rock structure, many thin silica and lime coats between plates.

Type location: Washoe County, Nevada, about 2,100 feet north and 1,600 feet west of the southeast corner of section 17, T. 43 N., R. 18 E. (41 degrees, 38 minutes, 46 seconds north latitude and 119 degrees, 59 minutes, 04 seconds west longitude).

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature: 47 to 52 degrees F.

Solum thickness: 17 to 30 inches.

Reaction: Slightly acid or neutral.

Depth to paralithic contact: 20 to 40 inches.

Control section:

Clay percent--45 to 60.

Rock fragments--0 to 10 percent pebbles.

Other features--Abrupt clay increase of 20 percent or more within a vertical distance of 1 inch or less between the A and Bt horizon. Linear extensibility is 6 centimeters or more.

A horizon:

Value--5 or 6 dry, 3 or 4 moist.

Chroma--2 or 3.

Other features--An increase of 15 percent clay in a vertical depth of 1 inch between the A and Bt horizon.

Bt horizons:

Value--8 or 7 dry, 4 or 5 moist.

Chroma--3 or 4.

Structure--Weak through strong prismatic or prismatic parting to angular blocky.

Other features--Common to many pressure faces.

C horizon:

Value--6 or 7 dry, 4 or 5 moist.

Texture--Clay loam and clay.

Clay content--35 to 50 percent clay.

Rock fragments--15 to 30 percent.

Reaction--Neutral or slightly alkaline.

Carbonates--None to few fine filaments and soft masses.

Weezweed Series

The Weezweed series consists of very deep, moderately well drained soils that formed in alluvium from volcanic rocks and pyroclastic materials. Weezweed soils are on stream terraces. Slopes are 0 to 2 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy, mesic Vitrihorrandic Haploxerops

Typical pedon: Weezweed loam, in map unit 1460 range and (Colors are for dry soil unless otherwise noted).

A1--0 to 5 inches, grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist, moderate thick

platy structure, slightly hard, very friable, sticky and slightly plastic, common very fine and fine roots, common very fine tubular and interstitial pores, neutral (pH 6.8), clear wavy boundary

A2--5 to 12 inches, grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist, weak coarse prismatic parting to moderate coarse subangular blocky structure, slightly hard, very friable, sticky and slightly plastic, common very fine and fine roots, common very fine tubular pores, neutral (pH 6.8), clear wavy boundary

A3--12 to 16 inches, grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist, weak coarse prismatic parting to strong fine and medium subangular blocky structure, slightly hard, very friable, sticky and slightly plastic, common very fine, fine and medium roots, common very fine tubular pores, common thin dark gray (10YR 4/1) strata, black (10YR 2/1) moist, neutral (pH 6.8), clear wavy boundary

C1--16 to 26 inches, light brownish gray (10YR 6/2) finely stratified sandy loam, dark grayish brown (10YR 4/2) moist, moderate coarse prismatic parting to strong thick platy structure, very hard, friable, slightly sticky and slightly plastic, few very fine through medium roots, few very fine tubular pores, common medium distinct dark yellowish brown (10YR 3/4) relict iron masses, black (10YR 2/1), moist, neutral (pH 6.7), clear wavy boundary

C2--26 to 42 inches, light brownish gray (10YR 6/2) stratified loam and sandy clay loam, dark grayish brown (10YR 4/2) moist, moderate coarse prismatic parting to strong thick platy structure, very hard, firm, sticky and slightly plastic, few very fine through medium roots, few very fine tubular pores, few fine distinct dark yellowish brown (10YR 3.4) moist relict iron masses, few fine black (10YR 2/1) moist relict manganese masses, slightly acid (pH 6.4), clear wavy boundary

C3--42 to 60 inches, light yellowish brown (2.5Y 6/3) stratified loam and sandy clay loam, olive brown (2.5Y 4.3) moist, massive, very hard, firm, sticky and slightly plastic, few very fine roots, common very fine tubular pores, common fine distinct black (10YR 2/1) moist relict manganese and grayish brown (2.5Y 5/3) moist relict iron masses, neutral (pH 6.6)

Type location: Washoe County, Nevada, about 1,500 feet southwest of War Canyon Ranch, about 100 feet south and 1,300 feet west of the northeast corner of section 4 T 42 N R 23 E (41 degrees, 35 minutes, 33 seconds north latitude and 119 degrees, 23 minutes, 09 seconds west longitude)

Range in Characteristics.

Soil moisture: Moist in winter and spring, dry from mid-June through October, saturated below 5 feet during late winter and early spring

Soil temperature: 47 to 50 degrees F

Thickness of mollic epipedon: 10 to 20 inches, organic matter decreases irregularly with depth

Mineralogy: 35 to 60 percent glass in the very fine and fine sand size throughout

Control section

Clay content--18 to 27 percent

Rock fragments--Less than 10 percent

Other features: Some pedons have C horizons below depths of 36 inches with stratified textures of sandy loam to silty clay loam. Thin discontinuous strata having up to 35 percent pebbles are present in some pedons

A horizons

Hue--10YR or 2.5Y

Value--4 or 5 dry, 2 or 3 moist

Chroma--0 through 2

Reaction--Neutral or slightly alkaline

C horizons:

Hue--10YR, 2.5Y or 5Y

Value--6 through 8 dry, 4 or 5 moist

Chroma--1 through 3

Structure--Weak or moderate fine to medium prismatic parting to platy or blocky, or is massive

Texture--Usually stratified gravelly loamy sand to silty clay loam. Dominantly loam or sandy clay loam when mixed

Redox features--Relict redox concentrations are present in most pedons

Weimer Series

The Weimer series consists of very deep, poorly drained soils that formed in mixed lacustrine sediments from volcanic sources. Weimer soils are on lakeplains. Slopes are 0 to 2 percent. Mean annual precipitation is about 13 inches and the mean annual temperature is about 43 degrees F.

Taxonomic class: Very-fine, montmorillonitic, frigid Xeric Epiaquerts

Typical pedon: Weimer clay, in map unit 1380 rangeland (Colors for dry soils unless otherwise noted). Vertical cracks 1 to 4 inches wide extend from the soil surface to a depth of 26 inches.

A1--0 to 4 inches, dark gray (10YR 4/1) clay, very dark gray (10YR 3/1) moist, strong very fine granular structure, hard, friable, very sticky and very plastic, many very fine and fine roots, many fine interstitial pores, neutral (pH 7.2), clear smooth boundary

A2--4 to 8 inches, dark gray (10YR 4/1) clay, very dark gray (10YR 3/1) moist, moderate medium and coarse prismatic structure parting to strong fine and medium subangular blocky, very hard, very firm, very sticky and very plastic, many very fine and fine roots, many very fine interstitial and few fine tubular pores, common pressure faces, neutral (pH 7.3), clear smooth boundary

Bss1--8 to 26 inches, dark gray (10YR 4/1) clay, very dark gray (10YR 3/1) moist, moderate medium and coarse prismatic structure parting to strong medium and coarse angular blocky, very hard, very firm, very sticky and very plastic, many very fine and fine roots, many very fine interstitial and few fine tubular pores, many slickensides, many wedge-shaped aggregates tilted 30 degrees from horizontal, few fine distinct yellowish

brown (10YR 5/4) iron masses on faces of peds

slightly alkaline (pH 7.4) gradual wavy boundary

Bss2 26 to 48 inches, dark gray (10YR 4/1) clay, very dark gray (10YR 3/1) moist, weak medium and coarse prismatic structure parting to strong medium and coarse angular blocky, very hard, very firm, very sticky and very plastic, few very fine and fine roots, common very fine interstitial and few fine tubular pores, many slickensides, many wedge-shaped aggregates tilted 30 degrees from horizontal, few fine distinct yellowish brown (10YR 5/4) iron masses on faces of peds, slightly effervescent, moderately alkaline (pH 8.4), clear smooth boundary

Bk 48 to 60 inches, dark gray (10YR 4/1) clay, very dark grayish brown (10YR 3/2) moist, massive, very hard, very firm, very sticky and very plastic, few very fine roots, few very fine and fine tubular pores, common fine and medium white (10YR 8/1) soft masses of lime, slightly effervescent, moderately alkaline (pH 8.4)

Type location: Washoe County, Nevada, in Crooks Meadow, about 1,600 feet east and 2,900 feet south of the northwest corner of section 22, T 45 N, R 18 E, 41 degrees, 48 minutes, 21 seconds north latitude and 119 degrees, 57 minutes, 26 seconds west longitude.)

Range in Characteristics

Soil moisture: Moist in winter and spring, ponded for very long duration during spring and early summer, dry late summer and fall.

Aquic condition: Saturated from the soil surface to within a depth of 20 inches during spring and early summer.

Soil temperature: 43 to 47 degrees F

Average summer soil temperature: 61 to 63 degrees F

Depth to secondary lime accumulation: 20 to 40 inches

Control section

Clay content--60 to 75 percent

Other features: When dry, vertical cracks 0.5 inches to 4 inches wide extend from the soil surface to a depth of 20 to 30 inches or more. The cracks are closed in winter and spring. Giga: micro relief is evident in most areas.

A horizons

Hue--Neutral, 10YR or 2.5Y

Value--4 or 5 dry, 2 through 3.5 moist

Chroma--0 or 1

Electrical conductivity--Less than 1

Bss horizons

Hue--Neutral, 10YR or 2.5Y

Value--4 or 5 dry, 2 or 3 moist

Chroma--0 or 1

Structure--Prismatic or angular blocky

Reaction--Slightly alkaline or moderately alkaline

Effervescence--Noneffervescent or slightly effervescent

Other features--Common or many slickensides and wedge-shaped aggregates. Few or common distinct redox concentrations.

Bk horizon

Hue--Neutral, 10YR or 2.5Y

Value--4 or 5 dry, 2 or 3 moist

Chroma--0 through 2

Texture--Clay or silty clay

Reaction--Moderately alkaline or strongly alkaline

Effervescence--Slightly effervescent or strongly effervescent. None to many fine to large soft masses of lime.

Welch Series

The Welch series consists of very deep, very poorly drained soils that formed in a prairie from mixed volcanic rock sources with a component of vitric pyroclastic materials. Welch soils are on flood plains, stream terraces, inset fans and in narrow hill and mountain valleys, bottomland, and drainageways. Slopes are 0 to 15 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 42 degrees F.

Taxonomic class: Fine-loamy, mixed, frigid Cumulic Endoaquolls

Typical pedon. Welch clay loam, in map unit 1360 meadow. (Colors for dry soils unless otherwise noted.)

A1 0 to 5 inches, very dark gray (10YR 3/1) clay loam, black (10YR 2/1) moist, moderate thin platy structure, slightly hard, friable, sticky and plastic, many very fine roots, many very fine tubular pores, neutral (pH 6.6), abrupt smooth boundary.

A2 5 to 16 inches, very dark gray (10YR 3/1) silty clay loam, black (10YR 2/1) moist, moderate very fine and fine granular structure, hard, friable, sticky and plastic, few fine and many very fine roots, many very fine tubular and interstitial pores, neutral (pH 6.8), gradual smooth boundary.

A3 16 to 28 inches, dark gray (N 4/0) sandy clay loam, black (10YR 2/1) moist, weak medium prismatic structure, hard, friable, sticky and plastic, few fine and very fine roots, few fine tubular and many very fine interstitial and tubular pores, few fine distinct dark yellowish brown (10YR 4/4) iron concentrations in pores, dark yellowish brown (10YR 3/4) moist, neutral (pH 6.8), gradual smooth boundary.

A4 28 to 43 inches, dark gray (N 4/0) sandy clay loam, black (N 2/0) moist, massive, hard, firm, sticky and plastic, few very fine and fine roots, few fine tubular and many very fine interstitial and tubular pores, neutral (pH 6.8), gradual smooth boundary.

Cg 43 to 60 inches, gray (5Y 5/1) sandy clay loam, very dark gray (5Y 3/1) moist, massive, hard, friable, sticky and plastic, few very fine and fine roots, few fine tubular and many very fine interstitial and tubular pores, neutral (pH 6.8).

Type location: Washoe County, Nevada, about 150 feet west and 2,000 feet south of the northeast corner of section 1, T 42 N., R 18 E, 41 degrees, 35 minutes, 29 seconds north latitude and 119 degrees, 54 minutes, 25 seconds west longitude.)

Range in Characteristics

Soil moisture—Wetness soils are saturated and have aquic conditions at or near the surface for a least one month during most years, mainly during the late winter and early spring months; water table drops to a depth of 18 to 35 inches from early spring through September.

Soil temperature—41 to 46 degrees F.

Mollic epipedon thickness—26 to over 60 inches, organic matter decreases irregularly with depth.

Control section—Clay content—27 to 35 percent, when mixed.

Mineralogy—Mixed, but the parent material has a large component of vitric pyroclastic materials.

Other features—Buried A horizons are common. Some pedons have gravelly strata or strata of silty clay loam, silt loam, clay loam, very fine sandy loam or sandy loam.

A horizons

Hue—10YR through 5Y or neutral

Value—3 through 5 dry, 2 or 3 moist

Chroma—0 through 3 in the upper part and 0 through 2 in the lower part

Reaction—Slightly acid or neutral

Other features—Few to many fine or medium redox morphic concentrations either as pore linings or masses

C horizons

Hue—10YR, 2.5Y, 5Y or neutral

Value—5 through 8 dry, 3 through 5 moist

Chroma—0 through 2

Structure—Massive or prismatic

Texture—Stratified dominantly sandy clay loam or clay loam

Consistence—Slightly hard or hard dry, very friable or friable moist, slightly sticky or sticky and slightly plastic or plastic

Reaction—Slightly acid to slightly alkaline

Other features—None to many fine to coarse redox concentrations or depletions either as masses or pore linings

Wendane Series

The Wendane series consists of very deep, somewhat poorly drained soils that formed in silty alluvium from mixed rocks, loess, and volcanic ash. The Wendane soils are on alluvial flats, stream terraces and smooth flood plains. Slopes are 0 to 4 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 48 degrees F.

Taxonomic class—Fine-silty, mixed (calcareous), mesic Aeric Haplaquepts

Typical pedon—Wendane silt loam, in map unit 1145 range and (Colors are for dry soil unless otherwise noted)

A1—0 to 3 inches, light gray (10YR 7/1) silt loam, grayish brown (10YR 5/2) moist, moderate very thin platy structure, slightly hard, very friable, slightly sticky and plastic, few very fine roots, many very fine vesicular and tubular pores, strongly effervescent, very strongly alkaline (pH 9.6), abrupt smooth boundary.

A2—3 to 10 inches, light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist, moderate very thin and thin platy structure, hard, very friable, sticky and plastic, few very fine and fine roots, many very fine tubular pores, strongly effervescent, very strongly alkaline (pH 9.6), clear wavy boundary.

C—10 to 15 inches, light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist, massive, hard, very friable, sticky and plastic, common very fine and few fine and medium roots, many very fine and few fine tubular pores, strongly effervescent, very strongly alkaline (pH 9.6), clear wavy boundary.

Cqk1—15 to 21 inches, white (10YR 8/2) silt loam, brown (10YR 5/3) moist, massive, slightly hard, very friable, sticky and plastic, common very fine and few fine and medium roots, many very fine and few fine tubular pores, 20 percent weak, 10 to 30 millimeter durinodes, lime is disseminated, strongly effervescent, strongly alkaline (pH 8.6), clear wavy boundary.

Cqk2—21 to 27 inches, white (10YR 8.1) very fine sandy loam (volcanic ash), light gray (10YR 7/2) moist, massive, slightly hard, very friable, slightly sticky and slightly plastic, common very fine and few fine roots, common very fine and fine tubular pores, 10 percent weak, 5 to 20 millimeter durinodes, 20 percent weak, discontinuous silica cementation, lime is disseminated, strongly effervescent, moderately alkaline (pH 8.4), abrupt wavy boundary.

Cr—2 to 4 inches, light brownish gray, (10YR 6.2) silty clay loam, dark grayish brown (10YR 4/2) moist, massive, hard, friable, sticky and plastic, few very fine roots, many very fine and common fine tubular pores, continuous thin clay films lining pores, common fine distinct strong brown (5YR 2.2) redox concentrations, brown (7.5YR 4/4) moist, slightly effervescent, few fine filaments of secondary carbonates, strongly alkaline (pH 8.6), clear wavy boundary.

Ab—40 to 48 inches, light gray (10YR 6.1) silty clay loam, very dark grayish brown and dark grayish brown (10YR 3/2 and 4/2) moist, massive, hard, friable, sticky and very plastic, few very fine roots, many very fine and few fine and medium tubular pores, continuous thin clay films lining pores, few snail shells evident, slightly effervescent, strongly alkaline (pH 8.6), clear irregular boundary.

C—48 to 65 inches, pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist, massive, hard, friable, sticky and very plastic, few very fine roots, many very fine and few fine tubular pores, continuous thin clay films lining pores, 10 percent fine and medium pebbles, slightly effervescent, moderately alkaline (pH 8.4).

Type location—Washoe County, Nevada, near the Humboldt County line, west of High Rock Lake in an unsectioned area, T 39 N, R 23 E, (41 degrees 16 minutes 54 seconds north latitude and 119 degrees 18 minutes 16 seconds west longitude.)

Range in Characteristics:

Soil moisture Saturated within depths of 28 to 40 inches during the spring of most years. Dry mid-summer through mid-winter moist in mid-winter, spring, and early summer. Apparent seasonal water table is between 2.5 and 4 feet between February and July.

Soil temperature 47 to 52 degrees F

Mineralogy Mixed, but has a strong influence from volcanic ash and other pyroclastic materials.

Depth to Cqk horizon 11 to 20 inches

Depth to redoximorphic concentrations 8 to 27 inches

Electrical conductivity 16 to 32 millimhos per centimeter throughout

SAR 46 to 99 in half or more of the upper 20 inches and decreases with depth

Profile reaction Moderately alkaline to very strongly alkaline

Other features Unconformable stratified gravelly sand or very gravelly sand are common in some pedons below 40 inches. Some pedons have Cq horizons that are noneffervescent below 40 inches.

Control section

Clay content--20 to 30 percent, when mixed

A horizon

Value--6 or 7 dry, 4 through 6 moist

Chroma--1 through 4

SAR--46 to 99

C and Cqk horizons

Hue--10YR or 2.5Y

Value--6 through 8 dry, 4 through 7 moist

Chroma--1 through 4

Texture--Stratified very fine sandy loam, silty loam, silty clay loam, and clay loam

Structure--Thin platy or is massive. Prismatic parting to angular blocky in some subhorizons

SAR--Less than 12

Other features--Strata of volcanic ash that are 4 to 10 inches thick are common at some depth between 13 and 36 inches

Cementation (Cqk horizons)--10 to 40 percent weakly or strongly cemented durinodes in a friable matrix and up to 30 percent discontinuous weak silica cementation in any one horizon

noted } The soil surface is covered with about 2 percent stones, 10 percent cobbles, and 20 percent pebbles.

A--0 to 3 inches dark grayish brown (10YR 4/2) stony loam, very dark brown (10YR 2/2) moist, weak very fine subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, many very fine roots, many very fine interstitial and tubular pores, 1 percent stones, 10 percent cobbles and 20 percent pebbles, neutral (pH 7.2), abrupt wavy boundary.

AB--3 to 7 inches grayish brown (10YR 5/2) very cobbly loam, very dark brown (10YR 2/2) moist, moderate very fine and fine subangular blocky structure, slightly hard, very friable, slightly sticky and slightly plastic, many very fine and fine and common medium roots, many very fine interstitial and tubular pores, 1 percent stones, 20 percent cobbles and 25 percent pebbles, neutral (pH 7.2), clear wavy boundary.

Bw1--7 to 14 inches brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist, strong fine and medium subangular blocky structure, hard, very friable, sticky and plastic, many very fine, common fine and few medium roots, many very fine and common fine tubular pores, 20 percent cobbles and 20 percent pebbles, slightly alkaline (pH 7.4), clear wavy boundary.

Bw2--14 to 22 inches, grayish brown (10YR 5.3) very cobbly loam, dark brown (10YR 3/3) moist, weak fine and medium subangular blocky structure, hard, very friable, sticky and plastic, many very fine, common fine and few medium roots, many very fine and common fine tubular pores, 20 percent cobbles and 30 percent pebbles, slightly alkaline (pH 7.6), clear wavy boundary.

Bw3--22 to 28 inches, yellowish brown (10YR 5/4) extremely cobbly loam, dark brown (10YR 3/3) moist, weak medium and coarse subangular blocky structure, hard, very friable, sticky and plastic, common very fine and few fine roots, many very fine tubular pores, 5 percent stones, 25 percent cobbles and 40 percent pebbles, slightly alkaline (pH 7.6), abrupt irregular boundary.

R--28 to 32 inches. Hard fractured andesite

Type location: Washoe County, Nevada, about 700 feet west and 2 100 feet north of the southeast corner of section 20 T 47 N R 19 E, (41 degrees 58 minutes 44 seconds north latitude and 119 degrees 52 minutes, 08 seconds west longitude.)

Range in Characteristics:

Soil moisture Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature 40 to 47 degrees F

Depth to bedrock 20 to 40 inches

Thickness of mollic 20 to 40 inches

Reaction Neutral or slightly alkaline

Control section

Clay content--18 to 30 percent

Rock fragments--35 to 50 percent

A horizons

Value--3 through 5 dry, 2 or 3 moist

Chroma--1 or 2

Westbutte Series

The Westbutte series consists of moderately deep, well drained soils that formed in colluvium weathered from basalt, tuff, and andesite. Westbutte soils are on hills and plateaus. Slopes are 4 to 50 percent. The mean annual precipitation is about 14 inches and the mean annual temperature is about 42 degrees F.

Taxonomic class. Loamy-skeletal, mixed, frigid Pachic Haploxero s

Typical pedon: Westbutte stony loam, in map unit 1346, range and (Colors are for dry soil unless otherwise

AB horizons.

Value—4 or 5 dry 2 or 3 moist

Bw horizons

Hue—10YR or 7.5YR

Value—4 or 5 dry 2 or 3 moist

Chroma—2 through 4 dry 2 or 3 moist

Structure—Subangular blocky or granular

Rock fragments—0 to 20 percent stones, 20 to 50 percent cobbles and 5 to 30 percent pebbles

nonsticky and nonplastic, few very fine roots; many very fine interstitial pores, common fine olive (5Y 4/4), iron concentrations in masses and in pores, neutral (pH 6.6), abrupt smooth boundary

3C2—50 to 60 inches, light brownish gray (2.5Y 6/2) stratified sandy clay loam and loam, light olive brown (2.5Y 5/3) moist, massive, hard, very friable, sticky and plastic, few very fine roots, common very fine tubular pores, many coarse distinct gray, N.E., common fine and medium distinct olive (5Y 4/4) and few coarse greenish gray (5G 5/1) iron concentrations and clay depletions in masses and in pores, neutral (pH 6.6)

Wetvit Series

The Wetvit series consists of very deep, very poorly drained soils that formed in a tephra from volcanic rocks and pyroclastic materials. Wetvit soils are on relatively narrow flood plains adjacent to plateaus and mountains. Slopes are 0 to 2 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy, mesic Aquandic Endoaquolls

Typical pedon: Wetvit fine sandy loam, meadow in map unit 1450 (Colors are for dry soil unless otherwise noted). The surface is covered with about 10 percent pebbles.

A1—0 to 16 inches, grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist, weak medium platy structure, hard, very friable, slightly sticky and nonplastic, many very fine and fine roots, common very fine tubular pores, few fine distinct dark brown (7.5YR 4/4) moist, iron masses, slightly acid (pH 6.2), clear smooth boundary.

A2—16 to 25 inches, gray (10YR 5/1) fine sandy loam, very dark gray (10YR 3/1) moist, weak medium prismatic structure parting to moderate medium subangular blocky, hard, very friable, slightly sticky and slightly plastic, common fine and very fine roots, common very fine tubular pores, common fine distinct dark yellowish brown (10YR 3/4) moist, iron masses, slightly acid (pH 6.4), clear smooth boundary.

A3—25 to 35 inches, dark gray (10YR 4/1) stratified loam black (10YR 2/1) moist, weak medium prismatic structure parting to moderate medium subangular blocky, very hard, firm, sticky and plastic, few fine and very fine roots, common very fine and fine tubular pores, common fine distinct dark brown (7.5YR 3/4) moist, iron concentrations in masses and in pores, slightly acid (pH 6.4), clear smooth boundary.

A4—35 to 44 inches, gray (10YR 5/1) stratified loam, very dark gray (10YR 3/1) moist, weak medium prismatic structure parting to moderate medium subangular blocky, hard, very friable, sticky and plastic, few very fine roots, common very fine tubular pores, common fine and medium distinct olive brown (2.5Y 4/3) and few fine distinct strong brown (7.5YR 4/6) iron concentrations in masses and in pores, neutral (pH 6.6), abrupt smooth boundary.

2C1—44 to 50 inches, gray (10YR 6/1) loamy sand, dark gray (10YR 4/1) moist, massive, soft, very friable

Type location: Washoe County, Nevada, in Hanging Rock Canyon, about 2,500 feet east and 2,200 feet south of the northwest corner of section 31, T. 42 N., R. 23 E., (41 degrees, 30 minutes, 45 seconds north, altitude and 119 degrees, 25 minutes, 48 seconds west longitude.)

Range in Characteristics:

Soil moisture: Wetvit soils are saturated due to a seasonal water table at a depth of 0 to 18 inches mainly during the late winter and early spring months.

Soil temperature: 47 to 50 degrees F.

Mollic epipedon thickness: 26 to 48 inches, organic matter decreases irregularly with depth.

Control section

Clay content—18 to 27 percent, when mixed

Texture—Dominantly stratified loam or sandy clay loam with strata of fine sandy loam or clay loam present in some pedons.

Rock fragments—Less than 15 percent

Mineralogy: 35 to 60 percent glass in the very fine and fine sand size throughout.

Other features: Buried A horizons are common. Some pedons have gravelly strata or strata of silty clay loam, silty loam, clay loam, very fine sandy loam or sandy loam. Due to aeolian dust, some pedons are calcareous in the surface layer.

A horizons

Hue—10YR, 2.5Y, 5Y or neutral

Value—3 through 5 dry, 2 or 3 moist

Chroma—0 through 2

Reaction—Slightly acid to slightly alkaline

Other features—Few to many redoximorphic concentrations either as pore linings or masses are present within 17 inches.

C horizons:

Hue—10YR, 2.5Y, 5Y or neutral

Value—5 through 8 dry, 3 through 5 moist

Chroma—0 through 3

Reaction—Neutral or slightly alkaline

Structure—Massive or prismatic

Texture—Stratified loam with strata of gravelly, sandy sand to clay loam.

Other features—None to many fine to coarse redoximorphic concentrations or depletions either as masses or pore linings.

Wylo Series

The Wylo series consists of shallow, well drained soils that formed in residuum and lesser amounts of colluvium from basalt and andesite. The Wylo soils are on summits and side slopes of plateaus and hills. Slopes are 8 to 30 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 50 degrees F.

Taxonomic class: Clayey montmorillonitic, mesic Lithic Argixerols

Typical pedon: Wylo very stony loam, in map unit 1160, range and (Colors are for dry soil unless otherwise noted.) The soil surface is partially covered with 10 percent stones, 5 percent cobbles, and 25 percent pebbles.

A--0 to 4 inches, brown (7.5YR 5/2) very stony loam, dark brown (7.5YR 3/2) moist; moderate medium platy structure parting to weak fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; few very fine vesicular pores and common very fine tubular pores; 5 percent stones, 5 percent cobbles, 25 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bt1--4 to 7 inches, brown (7.5YR 5/2) gravelly clay loam, dark brown (7.5YR 3/2) moist; moderate fine and medium angular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; many thin and few moderately thick clay films on faces of peds and in pores; 10 percent cobbles, 20 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bt2--7 to 11 inches, brown (7.5YR 5/2) gravelly clay, dark brown (7.5YR 4/2) moist; moderate fine and medium prismatic structure parting to strong fine and medium angular blocky; very hard, friable, very sticky and very plastic; few very fine and fine roots; common very fine tubular pores; many moderately thick and thick clay films on faces of peds and in pores; 10 percent cobbles, 20 percent pebbles; neutral (pH 7.0); clear wavy boundary.

Bt3--11 to 16 inches, brown (7.5YR 5/4) gravelly clay, dark brown (7.5YR 4/4) moist; strong fine angular blocky structure; very hard, friable, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; many moderately thick and thick clay films on faces of peds; 10 percent cobbles, 20 percent pebbles; neutral (pH 7.0); abrupt irregular boundary.

R--15 to 19 inches, hard fractured basalt.

Type location: Washoe County, Nevada, about 2.75 miles north of High Rock Canyon, about 2.0 miles west of the Humboldt County line; about 2,200 feet north and 300 feet east of southwest corner of section 14 T. 40 N. R. 23 E., (41 degrees, 22 minutes, 19 seconds north latitude and 119 degrees, 20 minutes, 26 seconds west longitude.)

Range in Characteristics

Soil moisture: Usually dry; moist winter, spring and early summer; dry July through October.

Soil temperature: 54 to 59 degrees F.

Depth to bedrock: 14 to 20 inches.

Mollic epipedon thickness: 7 to 11 inches, includes upper part of argillic horizon.

Profile reaction: Neutral or slightly alkaline.

Control section:

Clay content--35 to 50 percent

Rock fragments--15 to 35 percent

A horizon

Hue--7.5YR or 10YR

Chroma--2 or 3 dry or moist

Bt horizons

Hue--7.5YR or 10YR

Value--3 or 4 moist; 4 or 5 dry

Chroma--Dominantly 2 or 3 in upper part, 3 or 4 in lower part; moist or dry

Texture--Dominantly clay or clay loam in the upper part.

Clay content--Individual subhorizons range from 35 to 55 percent; average is 35 to 50 percent.

Rock fragments--Average 15 to 35 percent; individual subhorizons may range up to 45 percent.

Yellowhills Series

The Yellowhills series consists of very deep, well drained soils that formed in alluvium high in volcanic ash. The Yellowhills soils are on inset fans. Slopes are 0 to 2 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy, mesic Vitric Torrandic Haploxerous

Typical pedon: Yellowhills sandy loam, in map unit 1161, rangeland. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches, grayish brown (10YR 5/2) sandy loam; very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine tubular and vesicular pores; neutral (pH 6.8); clear smooth boundary.

A2--2 to 16 inches, brown (10YR 5/3) sandy loam; very dark grayish brown (10YR 3/2) moist; massive soft; very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular pores; neutral (pH 6.8); clear smooth boundary.

Bw--16 to 34 inches, pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; massive soft; very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular pores; neutral (pH 6.8); clear smooth boundary.

Bq--34 to 60 inches, pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive slightly hard; very friable, slightly sticky and slightly plastic; few very fine

and fine roots many very fine tubular pores; 10 percent weakly cemented durinodes; neutral (pH 7.0)

Type location: Washoe County Nevada, near the Humboldt county line, about 100 feet north and 1,800 feet east of the southwest corner of section 36 T 39 N, R 23 E (41 degrees, 14 minutes, 07 seconds north latitude, 119 degrees, 19 minutes, 08 seconds west longitude)

Range in Characteristics:

Soil moisture: Usually dry, moist in winter and spring, dry from late June through October

Soil temperature: 43 to 46 degrees F

Mollic epipedon thickness: 10 to 20 inches

Depth to Bq horizons: 25 to 40 inches

Reaction: Neutral or slightly alkaline

Control section:

Clay content--8 to 15 percent

Rock fragments--0 to 15 percent

Volcanic glass content: 60 to 80 percent of the 0.02 to 2 mm fraction

A horizons:

Chroma--2 or 3

Bw horizon:

Value--3 or 4 moist

Chroma--3 or 4

Texture--Sandy loam or fine sandy loam

Clay content--8 to 15 percent

Rock fragments--0 to 15 percent

Bq horizon:

Value--3 or 4 moist

Chroma--3 or 4

Texture--Sandy loam or fine sandy loam

Clay content--8 to 15 percent

Rock fragments--0 to 15 percent

Consistence--Soft or slightly hard, very friable or friable

Other features--Has 5 to 15 percent weakly cemented durinodes or has few thin strata of discontinuous weak cementation. Some pedons have segregated me

Zorravista Series

The Zorravista series consists of very deep, excessively drained soils that formed in mixed aeolian material. The Zorravista soils are on semi-stabilized sand dunes and sand sheets superimposed on beach terraces. Slopes are 4 to 15 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 48 degrees F.

Taxonomic class: Mixed, mesic Xeric Torripsamments

Typical pedon: Zorravista fine sand, in map unit 1030 rangeland (Colors are for dry soil unless otherwise noted)

A--0 to 4 inches, light brownish gray (2.5Y 6/2) fine sand, very dark grayish brown (2.5Y 3/2) moist, single grain, loose when dry and moist, few micro roots, many very fine and fine interstitial pores, strongly effervescent, moderately alkaline (pH 8.2), clear smooth boundary

C1--4 to 29 inches, light brownish gray (2.5Y 6/2) fine sand, dark grayish-brown (2.5Y 4/2) moist, single grain, loose when dry and moist, very fine and few fine roots, many very fine and fine interstitial pores, slightly effervescent, moderately alkaline (pH 8.0), diffuse smooth boundary

C2--29 to 60 inches, light brownish gray (2.5Y 6/2) fine sand, dark grayish brown (2.5Y 4/2) moist, single grained, loose when dry and moist, many micro and few very fine and fine roots, many very fine and fine interstitial pores, slightly effervescent, moderately alkaline (pH 8.0)

Type location: Washoe County Nevada, about 3.5 miles southeast of Painted Point, about 2.5 miles south of Road 8A near Sand Spring in an unsectioned area (41 degrees, 32 minutes, 52 seconds north latitude and 119 degrees, 40 minutes, 09 seconds west longitude)

Range in Characteristics:

Soil moisture: Usually dry, dry mid spring through fall, moist winter and early spring

Soil temperature: 47 to 52 degrees F

Control section:

Clay content--Less than 5 percent

Other features--Effervescent to at least 20 inches

A horizon:

Hue--10YR 2.5Y

Value--6 or 7 dry, 3 through 6 moist

Chroma--1 through 4

Reaction--Moderately alkaline or strongly alkaline

Effervescence--Slightly effervescent or strongly effervescent

C horizons:

Hue--10YR or 2.5Y

Consistence--Soft to slightly hard or loose dry, very friable or loose moist

Value--5 through 8 dry, 3 through 6 moist

Chroma--1 through 4

Texture--Fine sand, sand or loamy fine sand

Clay content--Less than 5 percent in the upper part

Reaction--Mildly alkaline through strongly alkaline

Structure--Single grained or massive

Effervescence--Noneffervescent to strongly effervescent

Zymans Series

The Zymans series consists of deep and very deep, well drained soils that formed in residuum and colluvium from

volcanic rocks with additions of loess and ash. The Zymans soils are on mountains, hills, plateaus and rock pediments. Slopes are 4 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 47 degrees F.

Taxonomic class: Fine montmorillonitic, mesic Andic Argixerols

Typical pedon: Zymans cobbly loam, in map unit 1285, range land. (Colors are for dry soil unless otherwise noted.)

A1--0 to 3 inches, dark brown (10YR 5/3) cobbly loam brown (10YR 3/3) moist, moderate thin and medium platy structure, slightly hard, very friable, slightly sticky and slightly plastic, many very fine and fine roots, common very fine interstitial pores, 10 percent pebbles and 15 percent cobbles, slightly alkaline (pH 7.6), clear wavy boundary.

A2--3 to 8 inches, brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist, moderate fine subangular blocky structure, slightly hard, very friable, sticky and plastic, many very fine, common fine and few medium roots, many very fine tubular pores, 5 percent pebbles, 5 percent cobbles, slightly alkaline (pH 7.6), clear wavy boundary.

Bt1--8 to 14 inches, grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist, moderate fine and medium subangular blocky structure, hard, very friable, very sticky and very plastic, many very fine and common fine and medium roots, many very fine tubular pores, common thin clay films on faces of peds and in pores, 10 percent pebbles, slightly alkaline (pH 7.6), clear wavy boundary.

Bt2--14 to 27 inches, yellowish brown (10YR 5/4) clay, dark brown (10YR 4/3) moist, strong fine and medium prismatic structure parting to strong fine and medium angular blocky, very hard, firm, very sticky and very plastic, common very fine and fine and few medium roots, common very fine tubular pores, many thin and common moderately thick dark yellowish brown (10YR 4/4) clay films, dark brown (10YR 3/3) moist on faces of peds and in pores, 10 percent pebbles, moderately alkaline (pH 7.8), clear wavy boundary.

Bt3--27 to 37 inches, light yellowish brown (10YR 6/4) clay, loam, dark yellowish brown (10YR 4/4) moist, strong fine prismatic structure parting to strong fine and medium angular blocky, very hard, friable, very sticky and very plastic, common very fine and few fine and medium roots, few very fine tubular pores, many thin and common moderately thick dark yellowish brown (10YR 4/4) clay films, dark brown (10YR 3/3) moist on faces of peds and in pores, 5 percent pebbles, moderately alkaline (pH 8.0), clear wavy boundary.

Btk--37 to 48 inches, light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist, moderate very fine and fine subangular blocky structure, very

hard, very friable, very sticky and plastic, few very fine and fine roots, few very fine tubular pores, common thin dark yellowish brown (10Y 4/4) clay films, dark brown (10YR 3/3) moist on faces of peds and in pores, common fine soft masses of lime, slightly effervescent, 10 percent pebbles, moderately alkaline (pH 8.4), abrupt wavy boundary.

Cr--48 to 52 inches, white (10YR 8/1) weathered volcanic tuff, light gray (2.5Y 7/2) moist, strong medium and thick platy rock structure, common fine soft masses of lime on faces of plates.

Type location: Washoe County, Nevada, about 2,500 feet east and 4,000 feet north of the southwest corner of section 27, T. 43 N., R. 18 E. (41 degrees, 37 minutes, 22 seconds north latitude and 118 degrees, 57 minutes, 16 seconds west longitude.)

Range in Characteristics

Soil moisture: Usually dry, moist in winter and spring, dry in summer and fall.

Soil temperature: 47 to 52 degrees F.

Mollic epipedon: 10 to 19 inches thick, includes the upper Bt horizon.

Depth to base of Bt horizon: 40 to 60 inches.

Depth to weathered bedrock: 40 to 60 inches.

Control section:

Clay content--45 to 60 percent, subhorizons in some pedons range from 35 to 60 percent.

Rock fragments--5 to 20 percent.

Other features--Clay increase is gradual, with less than 20 percent within 3 inches of the boundary of the A and Bt horizon.

A horizon:

Value--4 or 5 dry, 2 or 3 moist.

Chroma--2 or 3.

Reaction--Neutral or slightly alkaline.

Bt horizon:

Hue--10YR or 7.5YR.

Value--4 through 6 dry, 2 through 4 moist.

Chroma--2 through 6 (Low value and chroma are in the upper part of the horizon).

Structure--Prismatic or blocky.

Consistence--Hard to very hard, dry.

Texture--The textures of the upper part of the Bt horizon are clay and silty clay; the lower part of the Bt horizon textures are silty clay loam, clay loam and clay with 0 to 15 percent rock fragments and averages 5 to 20 percent rock fragments.

Reaction--Neutral to moderately alkaline, increasing with depth.

Lime accumulation--Segregated lime occurs below 35 inches in most pedons.

Formation of the Soils

This section relates various soils in the survey area to the major factors of soil formation.

Soil is a natural body on the surface of the earth in which plants grow. It is a mixture of rock and mineral matter, organic matter, water, and air, which occur in varying proportions. The rocks and minerals are fragmented and partly or wholly weathered. Soils have distinctive layers or horizons that are the product of environmental forces acting upon materials deposited or accumulated by geological agencies. The layers are more distinct in some soils than others.

The characteristics of the soils at any given point are determined by the interaction of (1) the parent material; (2) the climate in which the parent material has accumulated and has existed since accumulation; (3) the relief or topography which influences the local or internal environment of the soil, its drainage, moisture content, aeration, susceptibility to erosion, and exposure to sun and wind; (4) the biological forces that act upon the soil materials; and (5) the length of time that climate, relief, and biological factors have acted on the parent material.

Climate

The climate of Washoe County, Nevada, North Part generally is characterized by warm, dry summers and cool, moist winters. The average annual precipitation ranges from about 6 inches on the eastern edge of Surprise Valley to about 18 inches in some of the higher elevation areas. The average annual air temperature ranges from about 50 degrees in the basins to 40 degrees in some of the higher mountains. Major climatic variations are the result of the effect of topography and relief. As a consequence, the soils within the area reflect a general zonation with increasing elevation.

At the lowest elevations on the eastern edge of Surprise Valley the precipitation is about 6 to 8 inches. Weathering of parent materials is slow, leaching is incomplete, and evaporation and illuviation proceed at a minimal rate. The plant cover consists mostly of a sparse stand of drought and salt-tolerant shrubs. Typical soils are low in organic matter and have a light-colored, thin A horizon. Bighat, Soda, and Raglan soils are examples of soils formed in the driest, warmer parts of the survey area.

As the elevation increases there is an accompanying increase in precipitation. This is reflected by deeper leaching of salts and carbonates, decreasing reaction changes in kind and density of vegetation, and thickening and darkening in the color of the A horizon.

At high elevations where the precipitation is about 15 inches, leaching of salts and carbonates is more intensive; the soils are slightly acid to neutral, and the A horizon is thick and high in content of organic matter. East, Hackwood, and Newlands soils are examples of soils formed where the climate is cool and moist.

Freezing and thawing generally occur throughout the area. The effects of frost action are discernible by the heaving of plants and puddling of surface soil resulting from saturation during daytime thaw.

Living Organisms

Plants, animals, insects, and microorganisms are important biological forces that affect soil formation in the area. Plants appear to have the dominant effect.

On wet soils, the dense growth of sedges, grass, and other plants supply the organic matter that gives Vetch and Wetvit soils a dark color.

Plants, because of climatic controls, reflect considerable variations in kind and amount as elevation increases. On basins, flood plains, alluvial fans, and terraces at low elevations, the plants are principally desert shrubs. Because of the scarcity of available moisture, plants cover only a small part of the surface. They add little organic matter to the soil, give little protection from wind and provide meager shade. Salt-tolerant shrubs, which occur in this kind of plant community, also tend to recycle salts from deeper subsurface layers to the soil surface. Mazuma and Raglan soils are examples of soils formed under sparse vegetation.

Alluvial fans, terraces, and foothills of higher elevations have a plant cover of shrubs and grass, which is transitional from the desert shrub to the upland shrub and tree plant communities. The density of plants in these areas is somewhat greater, and the soils have accumulated more organic matter and have a darker-colored A horizon. Langston and Saraph soils formed under transitional vegetation consisting mainly of sagebrush and grasses.

The plateaus and mountainous areas have denser stands of plants, which are dominated by shrubs, grasses, and trees. Because of the more abundant vegetation, the A horizon of the soils in these areas is dark-colored, has subangular blocky soil structure and has increased considerably in thickness. Fiddler, Hapgood, and Newlands soils formed under the vegetation common to mountains and high plateaus.

Relief

Relief through its control on drainage, runoff, and erosion has had an important effect on soil formation in the area. Physiographic features of the area, which control relief to a considerable extent, include (1) north-south oriented mountain ranges, (2) volcanic plateaus, and (3) enclosed valleys.

The mountain ranges are mainly characterized by excessive relief. Runoff is rapid, very rapid, and erosion occurs at a rapid rate. The removal of material by erosion interferes with soil profile development. Because of erosion, soil development is reflected primarily by dark A horizons. Bt horizons and Bw horizons occur in the more stable soils on these landscapes. Hartig Hapgood and Newlands soils are examples.

The volcanic plateaus have normal to subnormal relief. Runoff is slow to medium, and the removal of material by erosion is minimal. Because erosion is so slow, soil development has been able to proceed over a considerable period of time. The soils developed on these landscapes have a relatively thin A horizon and a clayey Bt horizon and are underlain by bedrock or duripan. Nevada Ferver, Halvert, Jaybee, Madeline, Ninemile, Nipac, and Tinpan are examples of soils that have developed on plateaus.

The valleys are essentially basins that receive drainage from surrounding uplands. A typical valley is characterized by having a nearly flat playa or intermittent lake in its lowest part, which is bordered by lacustrine terraces, numerous longshore bars, embankments, and other shoreline features. Large fan piedmonts flank upland mountains and encroach on lower lying terraces, lake shorelines, and playas.

The terraces, fan piedmonts, and shoreline features have mostly normal relief. Erosion is essentially in equilibrium with the rate of soil development. Examples of soils that have formed on these landscapes include Orr and Surprise soils.

The low flat terraces and narrow flood plains have flat or concave relief. Runoff is very slow and the poor drainage in these soils has caused the formation of development of redox morhic features. The soils in these areas support dense stands of meadow vegetation that has resulted in a dark colored A horizon because of the large additions of organic matter to the soil. Weich and Welvil soils are examples of soils that have formed on these landscapes. Some soils that are subject to a high water table contain excessive soluble salts in their upper horizons. These soils are light colored and some have salt crusts on their surface. Examples of some of the soils developed on salt affected flat, or concave surfaces are Dugway, Skullwak, and Updike series.

Parent Material

Parent material is the weathered rock or unconsolidated material from which soils form. The hardness, grain size, and porosity of the parent material and its content of weatherable minerals greatly influence soil formation. The main sources of parent material in Washoe County

Nevada, North Part are hard rock, weakly to strongly consolidated pyroclastic rocks, alluvium, and eolian sand. Hard rock sources of parent material principally include massive and jointed basalt, rhyolite, and andesite. These rocks contain considerable minerals that weather to form clays. Rhyolite contains considerable quartz and yields much quartz sand as a weathering product. The various kinds of hard rock in the area provide the parent material for a large part of the soils on mountains and plateaus. Generally, under comparable conditions, basalt, rhyolite, and andesite weather at a slower rate than other kinds of rock in the area.

Volcanic tuff, ash, breccia, obsidian, and agglomerate are interbedded with basalt, andesite, and rhyolite on the mountains and plateaus. Tuff also is interbedded with some of the older valley alluvium. Volcanic ash occurs in varying amounts in most of the parent materials within the survey area. The pyroclastic rocks have a mineralogical composition comparable to the various hard volcanic-flow rocks with which they are associated. They consequently weather to yield similar clays and other products of weathering. Because they are generally softer and more porous, the pyroclastic rocks are believed to weather more rapidly than the more massive hard rocks.

Alluvium, which is the parent material for the major area of soils in Long Valley and Mosquito Valley, consists of sandy, loamy, and clayey materials of mixed mineralogical composition that washed from surrounding uplands. These parent materials were deposited on alluvial fans, or narrow flood plains, and in lake basins. Alluvial deposits on fan piedmonts and flood plains are mostly loamy textured and contain varying amounts of gravel, cobble, and stones. Because of high porosity, particle-size characteristics, and a high content of weatherable minerals, these kinds of alluvial deposits have a potential for rapid weathering.

Alluvial deposits in lake basins consist mostly of silty and clayey material that contain varying amounts of salts. The Longdis and Updike soils are examples of soils formed in alluvium on the lake basins. Gravel and sand occur within the basins as longshore bars, lagoons, and other shoreline deposits. The Bighat, Langston, Fempont, Mazuma, Paypoint, and Mcwatt soils are examples of soils formed in this kind of material. Weathering of the loamy materials can proceed rapidly under favorable conditions because of the high content of weatherable minerals and porosity. The clayey materials contain low amounts of weatherable minerals and have low permeability. Weathering is consequently slow and less obvious than in other parent materials in the area.

Eolian deposits and sandy beach deposits are in dune areas or beaches around the lake basin. These materials are sands of mixed mineralogical composition. They are porous and, under favorable conditions, have a potential for considerable alteration. The Davey, Mazuma, Soide, and Zorravista soils are examples of soils on beaches or dunes.

Because of the general mineralogical similarity in parent materials of Washoe County, Nevada, North Part, soil formation under comparable climate, relief, and biological conditions tends toward the development of soils that have similar kinds and sequences of horizons. Notable exceptions are those soils that formed in clayey parent materials, and those soils that contain considerable amounts of volcanic ash and glass. High shrink-swell

action in clayey materials tends to restrict the development of subsurface horizons by causing mixing. Examples of these kinds of soils are the Boulder Lake, Karlo, Tunnison, and Weimer soils. Soils with considerable volcanic ash and glass are young enough that they usually show only some soil development. The Ashcamp, Ashdos, Ashone, Ashtre, Bitner, Boltz, Emagert, Frentera, Paypoint, Saraph, Tuffo, Tusune, Weezweed, Wetvit, and Yellowhills are examples of soils formed in material with considerable volcanic ash and glass. Other soils that contain ash and glass have weathered enough to produce silica. The weathering and the availability of silica in these materials tends to form horizons cemented by silica. The Buffaran, Chime, Esmod, Farver, Grassycan, Halvert, Hangrock, Indian Creek, Lofftus, Nespring, Nitpac, and Powlow are examples of soils with horizons cemented by silica.

Time

The effect of time on soil formation in Washoe County, Nevada, North Part is readily apparent. The existence of flood plains, lacustrine terraces, sequences of alluvial fans and the stable volcanic plateaus indicate the relative age of soils formed on these landscapes.

The flood plains and presently aggrading alluvial fans are the most recent parent materials. Some recent parent materials that have been exposed to weathering by erosion are also on the steep mountains. Soils on these recent landforms have little or no profile development other than the formation of an A horizon with or without a Bw horizon. Wetvit soils on flood plains and Haggood soils in upland areas are examples of soils that formed in recent parent material.

The intensity of soil development increases in sequence from recent to older landscapes. On lacustrine terraces

that are believed to date back to the close of the Pleistocene epoch and on alluvial fans and stable mountain areas of comparable age, the soils have developed an A horizon and a Bw or weak Bt horizon. Hartig, McConnel, Raglan, and Surprise soils are examples of soils that formed on landscapes of this age.

On landscapes that are believed to date back to late interpluvial periods of the Wisconsin stage, the soils have developed distinct A and Bt horizons and in some areas Bk or Bq horizons. The Bt horizon is strongly expressed and ranges in texture from clay loam to light clay. Major soil development in these soils probably took place prior to the Recent epoch. Hart Camp, Schamp, Uhard, and Zymans are examples of soils believed to date back to late in the Wisconsin age.

Older alluvial fans, terraces, and plateaus are believed to date back to the earlier part of the early Wisconsin stage of the Pleistocene epoch. Soils on these landscapes have an A horizon and a fine or very fine Bt horizon. Some soils on these landscapes have also developed indurated silica cemented duripans. Stones and cobbles are only on the surface of some of these soils, possibly indicating frost activity during glacial periods of the Pleistocene epoch or a residual effect of long-time weathering and deepening of the soil profile. Soils that are believed to represent total effects of soil development over a period of time dating to the early Wisconsin age include Cotant, Esmod, Farver, Madeline, Ninemile, Tinpan, and Toney soils.

Comparisons of soil profiles and the relative age of landscapes indicate that soils having distinct argillic (Bt) horizons may have developed their primary characteristics during the Wisconsin stage of the Pleistocene epoch. This indicates that soil development in Washoe County, Nevada, North Part has not been a rapid process.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases) or both that plant growth is restricted.

Alluvial cone. The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.

Alluvial fan. The fanlike deposit of a stream where it issues from a narrow valley upon a plain, or of a tributary stream near or at its junction with its main stream.

Alluvial flat. A nearly level, graded alluvial surface in bolsons and semi-bolsons. Commonly, an alluvial flat does not manifest terraces or floodplain levels.

Alluvium. Material, such as sand, silt, or clay deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Argillite. Weakly metamorphosed mudstone or shale.

Arroyo. The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic

repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity)

The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3.5
Low	3.5 to 5
Moderate	5 to 7.5
High	more than 7.5

Avalanche chute. The track or path formed by an avalanche.

Back slope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes, in profile, are commonly steep, are linear, and may or may not include cliff segments.

Backswamp. A floodplain landform of extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Ballena. A fan remnant having a distinctively rounded surface of fan alluvium. The ballenas' broadly rounded shoulders meet from either side to form a narrow summit and merge smoothly with concave short pediments which form smoothly-rounded drainageways between adjacent ballenas. A partial ballena is a fan remnant large enough to retain some relict fan surface on a remnant summit.

Barrier beach. A wide, gently sloping portion of a bolson floor comprising numerous parallel, relict onshore-bars and lagoons built by a receding proglacial lake.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K).

- expressed as a percentage of the total cation-exchange capacity
- Basin floor.** A general term for the nearly level, lower-most part of intermontane basins (i.e. bolson semi-bolsons). The basin floor includes all of the alluvial, eolian, and erosional landforms below the piedmont slope
- Beach terrace.** The relict shorelines from pluvial lakes, generally restricted to valley sides
- Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment
- Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a field. It consists of a series of low ridges separated by shallow, parallel, dead furrows
- Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface
- Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock
- Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion
- Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons
- Blowout.** A shallow depression from which all or most of the soil material has been removed by wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed
- Board foot.** A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board one foot wide, one foot long, and one inch thick before finishing
- Bolson.** A landscape term for an internally drained intermontane basin into which drainages from surrounding mountains converge inward toward a central depression
- Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter
- Breaks.** The steep and very steep broken land at the border of an upland summit that is dissected by ravines
- Breast height.** An average height of 4.5 feet above the ground surface, the point on a tree where diameter measurements are ordinarily taken
- Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife
- Butte.** An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck
- Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid
- Caldera.** A large, more or less circular depression formed by explosion and/or collapse which surrounds a volcanic vent or vents, and whose diameter is much greater than that of the included vent, or vents
- Caliche.** A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft thin layers in the soil or as hard, thick beds directly beneath the soil or it is exposed at the surface by erosion
- California bearing ratio (CBR).** The load-supporting capacity of a soil as compared to that of a standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion
- Canopy.** The leafy crown of trees or shrubs. (See Crown)
- Canyon.** A long, deep, narrow, very steep-sided valley with high, precipitous walls in an area of high local relief
- Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil
- Catena.** A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage
- Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen
- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning
- Channeled.** Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material
- Channery soil material.** Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer
- Chemical treatment.** Control of unwanted vegetation through the use of chemicals
- Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth
- Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt
- Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the

removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clayey soil. Silt, clay, sandy clay, or clay.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Clearcut. A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from adjacent stands.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Closed depression. A low area completely surrounded by higher ground and having no natural outlet.

Coarse fragments. Mineral or rock particles larger than 2 millimeters in diameter.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded, partly rounded, or angular fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent by volume rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.

Codominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

Colluvium. Unconsolidated, unsorted earth material moved and deposited by mass movement on slopes and at the base of slopes.

Commercial forest. Forest land capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small an area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Cemented bodies with crude internal symmetry organized around a point, plane, or a plane that typically takes the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic rock composed of rounded to subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of

sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material, and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration, plasticity, toughness, and stickiness of puddled soil material, and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but, for many, it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Return of crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cuesta. A hill or ridge that has a gentle slope on one side and a steep slope on the other, specifically, an asymmetric, monoclinic ridge capped by resistant rock layers of slight or moderate dip.

Culmination of the mean annual increment (CMAI)

The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase.

- The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.
- Cutbanks** (cave in tables). The walls of excavations tend to cave in or slough.
- Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.
- Deep soil.** A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Deferred grazing.** Postponing grazing or resuming grazing land for a prescribed period.
- Delta.** A body of alluvium having a surface that is nearly flat and fan shaped, deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.
- Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.
- Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock, deep soils, 40 to 60 inches, moderately deep, 20 to 40 inches, shallow, 10 to 20 inches, and very shallow, less than 10 inches.
- Depth to rock** (in tables). Bedrock is too near the surface for the specified use.
- Desert pavement.** On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.
- Dip slope.** A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.
- Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.
- Divided-slope farming.** A form of field stripcropping in which crops are grown in a systematic arrangement of two strips or bands across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.
- Dominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.
- Drainage class (natural).** Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized: excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."
- Drainage, surface.** Runoff or surface flow of water from an area.
- Drainageway.** An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.
- Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.
- Dune.** A mound, ridge, or hill of loose, windblown granular material (generally sand), either bare or covered with vegetation.
- Ecological Site.** A distinctive kind of rangeland or grazed forestland that has a unique historic potential native plant community. Ecological sites are the products of all the environmental factors that affect the development. An ecological site is capable of supporting a native plant community that has a unique kind and/or proportion of species or total vegetative production. Ecological sites in grazed forestland include both overstory and understory vegetation.
- Effervescence.** The quality of a soil measured when drops of diluted (1:10) hydrochloric acid (HCL) are added to the soil. The ratings are as follows:
- | | |
|----------------------------|---------------------------------|
| very slightly effervescent | few bubbles |
| Slightly effervescent | bubbles readily |
| Strongly effervescent | bubbles form low foam |
| Violently effervescent | bubbles form thick foam quickly |
- Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.
- Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.
- Eolian soil material.** Earthy parent material accumulated through wind action, commonly refers to sandy material in dunes or to loess in blankets on the surface.
- Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation; it receives no long-continued supply from melting snow or other source, and its channels above the water table at all times.
- Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.
- Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
- Erosion (geologic).** Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
- Erosion (accelerated).** Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym, scarp.

Even aged. Refers to a stand of trees in which only small differences in age occur between the individuals. A range of 20 years is allowed.

Excess alkali (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess lime (in tables). Excess carbonates in the soil that restrict the growth of some plants.

Excess salts (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Excess sodium (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

Excess sulfur (in tables). Excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan apron. A sheet-like mantle of relatively young alluvium covering part of an older fan piedmont surface. It somewhere buries a soil that can be traced to the edge of the fan apron.

Fan piedmont. The most extensive landform on piedmont slopes, formed by the coalescence of alluvial fans or accretions of fan aprons into one generally smooth slope.

Fan remnant. A general term for landforms that are remaining parts of older fan-landforms, that either have been dissected or partially buried.

Fan skirt. The zone of smooth, laterally-coalescing, small alluvial fans that issue from gullies cut into the fan piedmont or that are the coalescing extensions of inset fans of the fan piedmont and that merge with the basin floor.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, birth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well-preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil expressed as a percentage of the oven-dry weight after the gravitational, or free, water has drained away, the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of fire fighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream subject to frequent or occasional flooding.

Flaggy soil material. Material composed of more than 5 percent flagstones. Very flaggy soil material is 35 to 60 percent flagstones, and extremely flaggy soil material is more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers, produced by river action as a fluvial plain.

Foothill. A short, sloping land that has relief of as much as 1,000 feet (300 meters), and fringes a mountain range or high-plateau escarpment.

Foot slope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant, not a grass or a sedge.

Forest cover. All trees and other woody plants, underbrush, and other ground cover.

Fragile (in tables). A soil that is easily damaged by use or disturbance.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings, and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the soil, or true soil, from the unconsolidated parent material.

Gilgai. The microrelief of clayey soils that shrink and swell considerably with changes in moisture content. Usually manifested as a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent by volume, rounded or angular rock fragments, not

prominently flattened as much as 3 inches (7.6 centimeters) in diameter

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity

Ground water. Water filling all the unblocked pores of underlying material below the water table

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage

Gypsum. A mineral consisting of hydrous calcium sulfate

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance

Heavy metal. Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil

Hill. A natural elevation of the land surface rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well-defined outline. Hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage

Holocene. The epoch of the Quaternary Period of geologic time extending from the end of the Pleistocene Epoch (about 10 to 12 thousand years ago) to the present

Horizon (soil). A layer of soil approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these, (2) prismatic or blocky structure, (3) redder or browner colors than those in the A horizon, or (4) a combination of these

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C

Cr horizon.—Soft, consolidated bedrock beneath the soil

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon

Humus. The well-decomposed, more or less stable part of the organic matter in mineral soils

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soils are not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon

Impervious soil. A soil through which water and roots penetrate slowly or not at all. No soil is absolutely impervious to air and water at the time

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced or eliminated. Increasers commonly are the shorter plants and less palatable to livestock

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface

Inset fan. A special case of the flood plain of an ephemeral stream that is confined between fan remnants, basin-floor remnants, bajinas, or closely opposed fan toeslopes

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream or reach of a stream that flows for prolonged periods only when it receives groundwater discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Intermontane basin. A generic term for wide structural depressions between mountain ranges that are partly filled with a puvium. They may be drained internally (bolsons), or externally (semi-bolsons).

Invasives. On range plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redox morphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:
Basin—Water is applied rapidly to nearly level plains surrounded by levees or dikes.
Border—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earthen ridges called border dikes or borders.
Controlled flooding—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.
Corrugation—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.
Drip (or trickle)—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.
Furrow—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.
Sprinkler—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.
Subirrigation—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.
Wild flooding—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lagoon. The nearly level, filled depression behind the longshore bar on a barrier beach.

Lake plain. A surface marking the floor of an extinct lake, filled in by well-sorted, stratified sediments.

Lake terrace. The narrow shelf produced along a lake shore and later exposed when the water recedes.

Lamella. A thin, generally horizontal layer of fine material (fluviated within a very much thicker, coarser eluviated layer).

Landform. Any recognizable form or feature on the earth's surface, having a characteristic shape, and produced by natural causes that provide an empirical description of similar portions of the earth's surface.

Landscape. A collection of related natural landforms.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones. ~~in **basins**~~ Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy soil. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt clay loam, sandy clay loam, or silty clay loam.

Loess. Fine-grained material, dominantly of silt-sized particles, deposited by wind.

Longshore bar. A narrow, elongate, coarse-textured ridge, built by the wave action of a pluvial lake that extends parallel to the shore and separated it from a lagoon; both the bar and lagoon are now relict features.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum, or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redox morphic concentration.

Mean annual increment (MAI). The average annual increase in volume of a tree during the entire life of the tree.

Mechanical treatment. Use of mechanical equipment for seedling brush management and other management practices

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt

Merchantable trees. Trees that are of sufficient size to be economically processed into wood products

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam

Moderately deep soil. A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil

Morphology, soil. The physical makeup of the soil including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance--*few*, *common*, and *many*; size--*fine*, *medium*, and *coarse*; and contrast--*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch), *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch), and *coarse*, more than 15 millimeters (about 0.6 inch)

Mountain. A natural elevation of the land surface rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material)

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts

Munsell notation. A designation of color by degrees of three simple variables--hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction soil)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and

manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water

Observed rooting depth. Depth to which roots have been observed to penetrate

Organic matter. Plant and animal residue in the soil in various stages of decomposition

Overstory. The trees in a forest that form the upper crown cover

Oxbow. The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*

Parent material. The unconsolidated organic and mineral material in which soil forms

Paria dune. An eolian dune built of sand size aggregates of clayey material that commonly occurs leeward of a playa

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block

Pediment. A gently sloping erosion surface developed at the foot of a piedmont or mountain slope

Pediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil

Percolation. The downward movement of water through the soil

Percolates slowly (in tables). The slow movement of water through the soil adversely affects the specified use

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity" which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability measured in inches per hour are as follows:

Extremely slow	0.00 to 0.01 inch
Very slow	0.01 to 0.05 inch
Slow	0.05 to 0.2 inch
Moderately slow	0.2 to 0.5 inch

Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piedmont slope. The dominant slope at the foot of a mountain. Main components of the piedmont slope include pediments, alluvial fans, fan piedmonts, fan skirts, and inset fans.

Piping (in tables). Formation of subsurface tunnels or pipe-like cavities by water moving through the soil.

Pitting (in tables). Pits caused by mounding around ice. They form on the soil after plant cover is removed.

Plasticity index. The numerical difference between the liquid limit and the plastic limit, the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Pleistocene. The epoch of the Quaternary Period of geologic time preceding the Holocene (from approximately 2 million to 10 thousand years ago).

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Pluvial. Relating to former periods of abundant rains.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Quartzite, metamorphic. Rock consisting mainly of quartz that formed through recrystallization of quartz-rich sandstone or chert.

Quaternary. The period of geologic time extending from about 2 million years ago to the present and comprising two epochs: the Pleistocene (Ice Age) and Holocene (Recent).

Quartzite, sedimentary. Very hard but unmetamorphosed sandstone consisting chiefly of quartz grains.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soil. A measure of acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity expressed as pH values are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline (mildly alkaline)	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of

iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regeneration. The new growth of a natural plant community developing from seed.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relict stream terrace. One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

Relief. The elevations or inequalities of a land surface considered collectively.

Residuum (residual soil material). Unconsolidated weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Riverwash. Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more, for example pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Rubble land. Areas that have more than 90 percent of the surface covered by stones or boulders. Voids contain no soil material and virtually no vegetation other than lichens. The areas commonly are at the base of mountain slopes, but some are on mountain slopes as deposits of cobbles, stones, and boulders left by Pleistocene glaciation or by periglacial phenomena.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land and without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called groundwater runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Salinity. The electrical conductivity of a saline soil. It is expressed in millimhos per centimeter as follows:

Nonsaline	+	+	+	0 to 2
Very slightly saline	+	+	+	2 to 4
Slightly saline	+	+	+	4 to 8
Moderately saline	+	+	+	8 to 16
Strongly saline	+	+	+	More than 16

Salty water (in tables). Water that is too salty for consumption by livestock.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sand sheet. A large, irregularly shaped surficial mantle of eolian sand.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy soil. Sand or loamy sand.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of a organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading into hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sawlogs. Logs of suitable size and quality for the production of lumber.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tilable soil.

Scribner's log rule. A method of estimating the number of board feet that can be cut from a log of a given diameter and length.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Semi-bolson. An intermontane basin that is drained externally by an intermittent stream.

Sequum. A sequence consisting of an alluvial horizon and the overlying eluvial horizon. (See Elevation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shelterwood system. A forest management system requiring the removal of a stand in a series of cuts so that regeneration occurs under a partial canopy. After regeneration, a final cut removes the shelterwood and allows the stand to develop in the open as an even-aged stand. The system is well suited to sites where shelter is needed for regeneration, and it can aid regeneration of the more intolerant tree species in a stand.

Shoulder slope. The uppermost inclined surface at the top of a hillside. It is the transition zone from the back slope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune. A small dune that forms around shrubs or small trees.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site class. A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

Site curve (50-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for the range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 50 years old or are 50 years old at breast height.

Site curve (100-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 100 years old or are 100 years old at breast height.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in

a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Skid trails. Pathways along which logs are dragged to a common site for loading onto a logging truck.

Slash. The branches, bark, treetops, reject logs, and broken or uprooted trees left on the ground after logging.

Slickens. Accumulations of fine-textured material such as material separated in placer-mine and ore-mill operations. Slickens from ore mills commonly consist of freshly ground rock that has undergone chemical treatment during the milling process.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes, on faces of blocks, prisms, and columns, and in swelling clayey soils, where there is a marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, the following slope classes are recognized:

Nearly level	0 to 2 percent
Gently sloping	2 to 4 percent
Moderately sloping	4 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 50 percent
Very steep	50 to 75 percent
Extremely steep	75 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (SAR) of a saturation extract, or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Very slight	5-12.1
Slight	13-30.1
Moderate	31-45.1

Strong	45-90°
very strong	more than 90°

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	—	2.0 to 1.0
Coarse sand	—	1.0 to 0.5
Medium sand	—	0.5 to 0.25
Fine sand	—	0.25 to 0.10
Very fine sand	—	0.10 to 0.05
Silt	—	0.05 to 0.002
Clay	—	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Species. A single, distinct kind of plant or animal having certain distinguishing characteristics.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A surface cut formed by the erosion of hard or semiconsolidated bedrock and thinly mantled with stream deposits.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow, the deepest or central part of the bed formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are *platy* (laminated), *prismatic*

(vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon, roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. A general term for the top or highest level of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer" or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Tailwater. The water directly downstream of a structure.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a right angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). A step-like surface, ordinarily flat or undulating, bordering a river, a lake, or the sea, representing a former flood plain.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic texture classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*

- The principal forms of soil structure are *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).
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- Thin layer (in tables).** Otherwise suitable soil material too thin for the specified use.
- Till plain.** An extensive area of nearly level to undulating soils underlain by glacial till.
- Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- Toe slope.** The outermost inclined surface at the base of a hill, part of a foot slope.
- Too arid (in tables).** The soil is dry most of the time and vegetation is difficult to establish.
- Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.
- Toxicity (in tables).** Excessive amount of toxic substances such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.
- Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.
- Trafficability.** The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.
- Tread.** The relatively flat terrace surface that was cut or built by stream or wave action.
- Tuff.** A compacted deposit that is 50 percent or more volcanic ash and dust.
- Understory.** Any plants in a forest community that grow to a height of less than 5 feet.
- Unstable fill (in tables).** Risk of caving or sloughing on banks of fill material.
- Upland (geology).** Land at a higher elevation, in general, than the alluvial plain or stream terrace, land above the lowlands along streams.
- Valley.** An elongated depression, area primarily developed by stream action.
- Valley fill.** In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.
- Variation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.
- Very deep soil.** A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Very shallow soil.** A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.



United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
United States
Department of the
Interior Bureau of Land
Management, and
University of Nevada
Agricultural
Experiment Station

Soil Survey of Washoe County, Nevada, North Part

Part II

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Soil Survey of Washoe County, Nevada, North Part

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture, as range, and as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities, and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Interpretative ratings help engineers, planners, and others to understand how soil properties influence important nonagricultural uses, such as building site development and construction materials. The ratings indicate the most

restrictive soil features affecting the suitability of the soils for these uses.

Soils are rated in their natural state. No unusual modification of the soil site or materials made other than that which is considered normal practice for the rated use. Even though soils may have limitations, it is important to remember that engineers and others can modify soil features or can design or adjust the plans for a structure to compensate for most of the limitations. Many of these practices, however, are costly. The final decision in selecting a site for a particular use generally involves weighing the costs of site preparation and maintenance.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, trees, and shrubs.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The system of land capability classification used by the Natural Resources Conservation Service is explained. The estimated yields of the main crops and pasture plants are listed for each soil in table 6 at the back of this publication.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units" in Part I of this Publication and in the "Soil Properties" portion of Part II. Specific information can be obtained from the local office of the Natural Resources Conservation Service or Nevada Cooperative Extension.

Cropland Limitations and Hazards

The management concerns affecting the use of the detailed soil map units in this survey area are shown in table 5 "Main Cropland Limitations and Hazards." The main concerns in managing irrigated cropland are efficient water use, control of soil blowing and water erosion, maintenance of soil fertility, pest and weed control, and timely planting and harvesting.

Efficient water use consists primarily of optimizing the water intake rate and reducing the runoff and evaporation rates. An irrigation system that provides optimum control and distribution of water is essential. Excessive irrigation wastes water, causes erosion, leaches plant nutrients, and increases the potential for ground-water pollution. It also can create drainage problems, raise the water table, and increase soil salinity. Applying conservation tillage and conservation crop rotation, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture.

Generally, a combination of several practices is needed to control *soil blowing* and *water erosion*. Conservation crop rotation, stripcropping, field windbreaks, tall grass barriers, contour farming, residue management, diversions, and grassed waterways help to prevent excessive soil loss.

Measures that are effective in maintaining *soil fertility* include applying fertilizer, both organic and inorganic, including manure, incorporating crop residue or green manure crops into the soil, and using proper crop rotations. Controlling erosion helps to prevent the loss of organic matter and plant nutrients and thus helps to maintain productivity, although the level of fertility can be reduced even in areas where erosion is controlled. All soils used for irrigated crops respond well to applications of fertilizer.

Some of the limitations and hazards shown in the table cannot be easily overcome. These are *channels*, *flooding*, *depth to rock*, *ponding*, and *gullies*.

Additional limitations and hazards are as follows:

Excessive permeability—This limitation allows deep leaching of nutrients and pesticides. The capacity of the soil to retain moisture for plant use is poor.

Potential for ground-water pollution—This is a hazard in soils with excessive permeability, hard bedrock, or a water table within the profile.

Lime content, **poor tilth**, **restricted permeability**, and **surface crusting**—These limitations can be overcome by incorporating green manure crops, manure, or crop residue into the soil, applying a system of conservation tillage, and using conservation cropping systems. Also, crops may respond well to additions of phosphate fertilizer to soils that have a high content of lime. Applications of sulfur may be useful in minimizing crusting.

Short frost-free season—If the growing season is less than 90 days, short-season crops or grasses should be grown.

Surface rock fragments—This limitation causes rapid wear of tillage equipment. It cannot be easily overcome.

Slope—Where the slope is more than 8 percent, water erosion may be accelerated unless conservation farming practices are applied.

Surface stones—Stones or boulders on the surface can hinder normal tillage unless they are removed.

Salt and sodium content—In areas where this is a limitation, only salt- and sodium-tolerant crops should be grown.

Following is an explanation of the criteria used to determine the limitations or hazards:

Channeled—The word "channeled" is included in the name of the map unit.

Depth to rock—Bedrock is within a depth of 40 inches.

Erosion by water—The surface K factor multiplied by the upper slope limit is more than 2 (same as prime farmland criteria).

Excessive permeability—The upper limit of the permeability range is more than 8 inches per hour within the soil profile.

Flooding—The component of the map unit is occasionally flooded or frequently flooded.

Gullied—The word "gullied" is included in the name of the map unit.

Lime content—The component is assigned to wind erodibility group 4L or has more than 5 percent lime in the upper 10 inches.

Limited available water capacity—The available water capacity calculated to a depth of 60 inches or to a root limiting layer is 4.5 inches or less.

Ponding. Ponding duration is assigned to the component of the map unit.

Potential for ground-water pollution.—The soil has a water table within a depth of 4 feet or hard bedrock within the profile, or permeability is more than 6 inches per hour within the soil.

Poor till.—The component of the map unit has more than 35 percent clay in the surface layer.

Restricted permeability.—Permeability is 0.06 inch per hour or less within the soil profile.

Salt content.—The component of the map unit has an electrical conductivity of more than 4 in the surface layer or more than 8 within a depth of 30 inches.

Short frost-free season.—The component of the map unit has a growing season of less than 90 frost-free days.

Slope.—The upper slope range of the component of the map unit is more than 8 percent.

Sodium content.—The sodium adsorption ratio of the component of the map unit is more than 13 within a depth of 30 inches.

Soil blowing.—The wind erodibility index multiplied by the selected C factor and then divided by the T factor is equal to or more than 8 for the component of the map unit.

Surface rock fragments.—The terms describing the texture of the surface layer include any rock fragment modifier except for gravelly or cherty, and surface stones" is not already indicated as a limitation.

Surface crusting.—The sodium adsorption ratio in the surface layer is 5 or more for any texture and 4 or more if the texture is silt, silty loam, loam, or very fine sandy loam.

Surface stones.—The terms describing the texture of the surface layer include any stony or bouldery modifier, or the soil is a stony or bouldery phase.

Water table.—The component of the map unit has a water table within a depth of 60 inches.

Crop Yield Estimates

The average yields per acre that can be expected of the principal irrigated crops under a high level of management are shown in table 6 "Land Capability and Yields per Acre of Crops." In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard

manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or Cooperative Extension can provide information about the management and productivity of the soils for those crops.

Pasture and Hayland Interpretations

Under good management, proper grazing is essential for the production of high quality forage, stand survival, and erosion control. Proper grazing helps plants to maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation also are important management practices.

Yield estimates are often provided in animal unit months (AUM), the amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Information about forage yields other than those shown in the table "Land Capability and Yields per Acre of Crops" can be provided by the local office of the Natural Resources Conservation Service or Cooperative Extension.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, or for engineering purposes.

In the capability system, as described in "Land Capability Classification" (6), soils generally are grouped at three levels: capability class, subclass, and unit. These levels indicate the degree and kinds of limitations affecting mechanized farming systems that produce the more commonly grown field crops, such as corn, small grain, cotton, hay, and field-grown vegetables. Only class and subclass are used in this survey.

Capability classes. the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use.

of properly managed soils in classes I, II, III, and IV are suitable for the mechanized production of commonly grown field crops and for pasture and woodland. The degree of the soil limitations affecting the production of cultivated crops increases progressively from class I to class IV. The limitations can affect levels of production and the risk of permanent soil deterioration caused by erosion and other factors.

Soils in classes V, VI, and VII are generally not suited to the mechanized production of commonly grown field crops without special management, but they are suitable for plants that provide a permanent cover, such as grasses and trees. The severity of the soil limitations affecting crops increases progressively from class V to class VII. The local office of the Cooperative Extension or Natural Resources Conservation Service can provide guidance on the use of these soils as cropland.

Areas in class VIII are generally not suitable for crops, pasture, or woodland without a level of management that is impractical. These areas may have potential for other uses, such as recreational facilities and wildlife habitat.

Capability subclasses indicate the dominant limitations in the class. They are designated by adding a small letter, a, w, s, or c to the class numeral, for example, 11e. The letter e shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained. w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage). s shows that the soil is limited mainly because it is shallow, droughty, or stony, and c shows that the chief limitation is a climate that is very cold or very dry.

There are no subclasses in class I because the soils of this class have few limitations. Class V contains only the subclasses indicated by w, s, or c because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use mainly to pasture, rangeland, woodland, wildlife habitat, or recreation.

The irrigated capability classification of each farmland map unit is given in table 6, "Land Capability and Yields per Acre of Crops."

Erosion Factors

Soil erodibility factors Kw and Kf quantify the susceptibility of soil to detachment by water. A wind erodibility group (WEG) is a grouping of soils that have similar properties affecting their resistance to soil blowing. The Wind Erodibility Index (I) is based on the WEG and is used in the wind erosion equation. Soil erodibility factors Kw and Kf are used in the Revised Universal Soil Loss Equation. The procedure for predicting soil loss is useful in

guiding the selection of soil and water conservation practices.

Soil Erodibility Factors Kw and Kf

Factor Kw shows the erodibility of the whole soil, and factor Kf shows the erodibility of only the fine-earth fraction (the material less than 2.0 millimeters in diameter). The soil erodibility factor indicates the susceptibility of a soil to sheet and rill erosion by water. The soil properties that influence erodibility are those that affect the infiltration rate, the movement of water through the soil, and the water storage capacity of the soil and those that allow the soil to resist dispersion, splashing abrasion, and the transporting forces of rainfall and runoff. The most important soil properties are the content of silt plus very fine sand, the content of sand coarser than very fine sand, the content of organic matter, soil structure, and permeability.

Wind Erodibility Groups

Soils are assigned wind erodibility groups on the basis of the properties of the surface layer. The properties that are most important with respect to soil blowing are soil texture, content of organic matter, calcium carbonate, reaction, content of rock fragments, and aggregate stability. Wind erodibility is inversely related to the percentage of dry surface soil aggregates larger than 0.84 millimeter in diameter. From this percentage, the wind erodibility index factor (I) is determined.

Soil Loss Tolerance (T) Factor

The annual Soil Loss Tolerance (T) is an estimate of the maximum rate of erosion that can occur without affecting crop productivity. The T factor is expressed in tons of soil loss per acre per year. Values of 1 to 5 are used. T values are assigned according to properties of limiting subsurface soil layers. The designation of a limiting layer implies that the material above the layer has more favorable properties for crop production. The criteria for assigning T are based on the severity of physical or chemical properties of subsurface layers, the climatically influenced properties of soil moisture and temperature, the economic feasibility of utilizing management practices to overcome limiting layers or conditions, and the depth to the limiting layer.

Additional information about wind erodibility groups and Kw, Kf, and T factors can be obtained from local offices of the Natural Resources Conservation Service or Cooperative Extension.

Rangeland And Grazeable Woodland Resource Management

In this soil survey report, the term "rangeland" refers to a kind of land rather than a land use. Areas of rangeland provide many important resource values. They act as vast watersheds and provide habitat for wildlife, livestock forage, and opportunities for recreation. The resource values of rangeland are intricately related to each other and are often directly affected by rangeland management. Because of the interrelationships among rangeland resources, rangeland managers should consider all resource values when planning range improvements.

About 90 percent of the acreage in this survey area is range and livestock grazing is the principal agricultural use of the rangeland. Livestock operations are mostly cow-calf or cow-calf-sheep enterprises. Ranches range from a few hundred to several thousands acres in size. They rely heavily on permitted use of public lands. Most of the rangeland within the survey area is administered by the Bureau of Land Management. The Bureau of Indian Affairs has management responsibility for the rangeland within Indian reservations.

Soil-Site Correlation

During the course of this soil survey, ecological sites were correlated with the soils identified within the survey area. These correlations are based on the current understanding of soil-plant-climate relationships in the survey area. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, content of salts or lime, and topographic position are also important. The relationship of climate to vegetation and soils is considered in the classification of soils and in soil mapping criteria. In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on range and are closely related to the kind of soil. Ecological sites can generally be determined from soil maps and map unit legends developed for the survey area.

Range Condition

The early devastation of range and plant communities through uncontrolled livestock grazing ended long ago, but severely depleted areas still reflect the abuses of early settlement. In the most severely disturbed areas, palatable shrubs generally have been replaced by less desirable shrubs and many native perennial grasses and forbs have been replaced by alien or introduced annual grasses and forbs. Recovery of the plant community has been most

evident where previous abuses were limited. The greater the level of deterioration, the longer the period of recovery. Although present-day rangeland production and plant diversity in the survey area are generally less than optimum, the overall condition of the rangeland is much improved from what was common in the early 1900's.

Range condition is determined by a comparison of the present plant community with the natural potential plant community on a particular range and ecological site. The more closely the existing community resembles the potential plant community, the higher the range condition. Range condition is an ecological rating only. It does not have a specific meaning that pertains to the present plant community for a given use. Ratings of range condition alone do not indicate whether the present plant community is improving or deteriorating in relation to its potential. The trend in range condition is a measure of the direction of change in the condition. It is an expression of the effects of current use. The present range condition is a reflection of the accumulated effects of past use. Once the potential plant communities have been identified and the present range condition has been determined, monitoring the trend in range condition over time can indicate whether management objectives are being met.

Rangeland Management

Range management requires a knowledge of the kinds of soil and of the natural potential plant communities the soils in a given area can support. It also requires an evaluation of the present range condition. For most range and plant communities, good management can improve the present condition and productivity of the range and can help to prevent accelerated erosion. Proper management of rangeland depends on many factors. The season of grazing use, the kind of grazing animal, the intensity and distribution of grazing, and the range resource potential are important management considerations. Multiple-use management that meets present and future needs requires extensive knowledge of the capabilities and limitations of the range resources. An understanding of the soil properties and dynamics of native plant communities is fundamental in applying ecological principles to the evaluation and management of rangeland.

Generally, the objective of range management is to manage grazing so that the plants growing on a site are about the same in kind and amount as the natural potential plant community for that site. Such management generally results in the optimum production of vegetation, conservation of water, and control of erosion. To meet a special need or a specific use, however, it may be

desirable to manage for a plant community other than the present plant community for these reasons must always be taken not to increase the susceptibility to erosion. Future uses and the relative ability of given sites to respond to management should be considered if the management objective is to establish a plant community other than the potential plant community.

Desirable forage plants of many plant communities within the survey area have been greatly depleted or even eliminated by excessive and untimely grazing. Generally perennial grasses have decreased in abundance and woody plants have increased. The productivity of forage plants is below the potential of potential primary sites.

Uneven livestock distribution has resulted in both overuse and underuse of the native forage.

An increase in the abundance and size of shrubs and an extensive invasion of cheatgrass (an introduced annual grass), have reduced the amount of soil moisture and nutrients available to perennial grasses and forbs. In areas where the range condition has not excessively deteriorated and an adequate population of desirable perennial grasses and forbs is available to respond to a release from plant competition, brush management can be effective in reversing the trend toward an increasing dominance of woody vegetation.

Abusive grazing of riparian vegetation by livestock can reduce water quality, eliminate streamside shrubs, cause soil compaction, accelerate erosion, and break down streambanks. Proper management of the rangeland in the survey area requires that special attention be given to riparian zones. Fortunately riparian communities often respond to improved livestock management more rapidly than upland plant communities. Riparian treatments in riparian areas vary with the stability of the riparian plant community and the condition of the adjacent upland plant communities.

Rangeland Seeding

Rangeland seeding may be required following the removal of woody vegetation in areas where desirable understory plants are scarce or are not included in the present plant community. Revegetation also may be necessary for critical area treatment following a wildfire or other major disturbance. Maximum grazing capacity can be achieved in seeded stands where the objective of management is uniform grazing of the stands and prevention of the concentration of livestock. Additional water developments and fencing may be required to meet management objectives.

The success of range seeding depends on the amount of moisture available during the growing season. Even in areas where adapted species are planted and improved seeding and land treatment techniques are applied, the success of range seeding is strongly influenced by rainfall. The distribution and amount of precipitation on the survey area fluctuate widely from one year to the next. Years of below normal precipitation are relatively frequent, and the risk of seeding failure caused by the unpredictability of climate should be acknowledged in addition to critical soil properties that affect seeding success.

Each soil in the survey area is rated in the table "Suitability for Rangeland Seeding." The criteria used in the development of these ratings are available from the

local Nevada office of the Natural Resources Conservation Service. Where critical area treatment is necessary, providing a plant cover that helps to prevent accelerated erosion may be advantageous on soils that are poorly suited to range seeding. The plants that are suited to the soils in the area to be treated should be selected for seeding.

More specific management concerns are addressed under the heading "Plant Communities in Washoe County Nevada, North Part" later in this section. Additional information about rangeland management can be obtained from local offices of the Natural Resources Conservation Service or Cooperative Extension.

Wildlife Considerations

Reducing the extent of brush cover can benefit many game and nongame wildlife species where the habitat needs of those animals are properly identified and planned for in the manipulation of vegetation. For instance, extensive areas dominated by big sagebrush provide marginal habitat for pronghorn antelope. The habitat can be improved by measures that decrease the density and height of the sagebrush. The habitat for mule deer can be improved by removing big sagebrush and thus enhancing the diversity of understory grasses and forbs or increasing the production of green forage on transitional range that has an excessive cover of shrubs.

For other species, however, brush removal may be detrimental. Sage grouse is a habitat-specific bird relying primarily on sagebrush for nesting. Treatments for the manipulation of sagebrush stands on range inhabited by sage grouse should provide for the maintenance of suitable grouse habitat, especially nesting habitat near strutting grounds. The optimum nesting habitat for sage grouse is one in which the crown cover of sagebrush that is less than 30 inches high is 20 to 40 percent. Treatment of the sagebrush that reduces the cover from 40 to 20 percent may not seriously degrade the nesting habitat and commonly improves the quality of forage for sage grouse.

In an assessment of how the manipulation of vegetation affects wildlife, "edge" habitat is an important consideration. The structure and dominance of plants that remain after manipulation differ with the method of treatment. Fire removes all of the vegetation, including the skeletons or woody portions of shrubs, and thus eliminates the structure of woody vegetation from the treated area. Prescribed burning may enhance the habitat for a number of wildlife species. Mule deer and many nongame species select recently burned areas for feeding. Brush treatment with herbicides leaves the dead skeletons of shrubs and retains the shrub structure. Herbicides may kill broad-leaved forbs in the shrub understory, which are staples in the diet of many game and nongame species. Chaining and, to a lesser degree, brush beating change the vegetative structure from tree/shrub or shrub to grassland and the residue they leave on the ground creates habitat for small mammals.

Many wildlife species in the survey area depend on riparian plant communities during much of the year. These plant communities support wildlife not common to desert ecosystems, such as short-eared owls, Pacific tree frogs, and long-tailed weasels. Riparian communities also

provide islands of habitat in desert environments for migrating birds, nuthatches, warblers, and other species that nest in forest ecosystems migrate to desert riparian zones in spring and fall.

Livestock water developments can be beneficial to wildlife if the water is available when the wildlife species occupy the area. Forage for wildlife can be enhanced if adapted forbs are included in a rangeland seeding.

More specific wildlife management concerns are addressed under the heading "Plant Communities in Washoe County Nevada North Part." Additional information about wildlife management can be obtained from local offices of the Natural Resources Conservation Service, Nevada Cooperative Extension, or Nevada Division of Wildlife.

Plant Communities in Washoe County, Nevada, North Part

A range and ecological site is a distinctive kind of range and that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community. An ecological site is the product of all environmental factors responsible for its development. It can support a native plant community typified by an association of species that differs from the potential plant community of other ecological sites in the kind or proportion of species or in total production. Disturbances, such as drought, fire, and grazing by native fauna, and the damage caused by insects and disease are recognized as natural factors in the development of native plant communities.

The appendix in the section "Rangeland Plants and Wood and Understory" shows the rangeland plants and wood and understory for each soil and contrasting inclusion in the detailed soil map units, the rangeland or wood and ecological site, the common plant name and scientific plant symbol for the characteristic vegetation, the average percent composition for each species in the potential plant community, the rangeland or woodland ecological site, and the total annual production of vegetation in favorable, normal, and unfavorable years. The characteristic vegetation, which consists of the grasses, forbs, shrubs, and immature trees that make up most of the potential plant community for each soil, is listed by common name. For rangeland, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals that can be used on a site. Availability of forage. Many plants, trees, and shrubs are inaccessible to foraging animals. For woodland, the percentage of the total annual production is not given because of a wide variation of production under different tree canopies. The presence of a plant species in the understory vegetation is shown by an "X" in the composition section of the table.

Total potential production is the amount of vegetation that can be expected to grow annually on well managed range and or woodland that supports the potential natural community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's production of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry

vegetation for favorable, normal, and unfavorable years. In a favorable year, above average amounts and optimum timing of precipitation during periods of warm temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture.

Riparian areas or meadows are interspersed throughout the survey area. Riparian vegetation grows on the flood plains along perennial streams. Stringer meadows are along spring-fed stream channels where moisture is available to plants throughout most of the growing season. Meadow vegetation also grows on the periphery of seeps and springs. Although they make up a small acreage in the survey area, the riparian zones are important because they provide free water, which improves the productivity of the riparian vegetation and lengthens the growing season of the vegetation. The zones are characterized by diverse plant species and a structural diversity of vegetation. The zones along stream channels are typically linear. The linear nature of the zones maximizes the edge effect between the zones and the adjacent uplands. An "edge" or ecotone, is a transition between plant communities or a joining of different vegetative structures with plant communities. It commonly is richer in wildlife than either of the adjoining communities.

Washoe County Nevada North Part is in the northwestern part of the Basin and Range Physiographic Province. The major plant associations in the survey area

Great Basin Region. Valley floors and the lower piedmont slopes are dominated by salt-desert shrub plant communities. Above the salt-desert shrub zone, sagebrush-grass plant communities are prevalent in areas where the mean annual precipitation is 8 inches or more.

Salt desert shrub communities normally reflect either a climatically dry environment where the mean annual precipitation is less than 8 inches or physiologically dry soil conditions. High concentrations of salts that interfere with the uptake of water by plants can create physiologically dry soil conditions. Representative shrubs of the salt-desert shrub communities are shadscale, bud sagebrush, winterfat, and Douglas rabbitbrush. The common grasses include Indian ricegrass, bottlebrush squirreltail, Sandberg bluegrass, and desert needlegrass.

The salt-desert shrub plant communities in the survey area include stands dominated by a single shrub species and stands that support relatively heterogeneous mixtures of shrubs and grasses. The vegetation is generally sparse, normally covering less than 20 percent of the surface. Wind erosion and water erosion are hazards because of the naturally sparse plant cover in most areas. The interspaces between plants in salt-desert shrub communities commonly are stabilized by surface pavements of rock fragments, by a puddled and crusted soil surface, or by microphytic (algae) surface crusts. These protective features can be damaged by livestock or off-road vehicle traffic.

Salt-desert shrub plant communities are most valuable as winter range for livestock. They can produce high-quality winter forage and are usually subject to only light snowfall. Most of the desirable forage species in these communities are dormant in winter (March and April), heavy use, or both. Where native rangeland communities are grazed in winter, an emergency supply of

feed should be readily available to carry livestock through periods of unusually severe weather.

Properly regulated grazing management can enhance the long-term productivity of salt-desert shrub plant communities. This management includes deferred grazing during critical growth periods in late winter, rotational grazing and control of the intensity and season of use. Fencing, herding, water hauling, and controlling livestock access to watering facilities can achieve a better distribution of grazing. Because of the harsh environment of the salt-desert shrub zone, manipulation of vegetation and revegetation projects generally are not advisable.

Salt-desert shrub communities provide habitat for a wide variety of nongame species, including whiptail lizards, antelope ground squirrels, loggerhead shrikes, and Pacific rattlesnakes. Plant communities that are dominated by shadscale or winterfat and associated forbs and grasses provide better water range conditions.

Fencing can deter the migration of pronghorn antelope because these animals commonly do not jump. As a result, the lower wire of the fences should be high enough for antelope to crawl under. Where feasible, the fence lines should be routed so that they cause the least disruption to antelope travel. Livestock water developments are beneficial to antelope and other wildlife if the water is available when the animals occupy the area. Few mule deer use salt-desert shrub communities, which generally are unimportant in deer management. Feral horses use these communities in winter.

Within the salt-desert shrub zone are low areas that commonly receive extra moisture as runoff from higher landscape positions and as shallow, low-velocity overflow from nearby water bodies.

Sagebrush and basin wildrye are important plants on these sites. When in good condition, these plant communities can produce more than 2,000 pounds of basin wildrye per acre. When in poor condition, however, they typically produce less than 500 pounds per acre. The potential for increasing the production of basin wildrye is good on many sites in poor or fair condition in the survey area. Basin wildrye provides standing dried forage during its fall and winter dormancy and can provide calving areas in late winter. Mule deer, pygmy rabbits, and northern harrers inhabit basin wildrye communities throughout the year.

Other plant communities that reflect extra moisture conditions are adjacent to valley floor playas. These areas may have a high water table and are dominated by black greasewood, shadscale, inland saltgrass, and basin wildrye are the characteristic plants on these sites.

Plant communities that are dominated by black greasewood provide thermal cover for many species of wildlife but have limited value for big game. Because of its spines and coarse structure, black greasewood provides protective cover to nesting birds and small mammals. Although this species is not a preferred forage plant for livestock, cattle and sheep eat the succulent spring growth. On late fall and winter ranges, the fruit of black greasewood and shadscale provides nutritious and palatable feed. The soluble oxalates in black greasewood may be harmful to livestock, especially sheep, if the new growth is excessively grazed in spring.

As snow melts in spring, runoff commonly drains into valley floor basins. It remains for short periods, providing nesting and feeding habitat for some waterfowl. Playas

containing water in spring are important resting places for migrating waterfowl. Sand dunes formed through the deposition of windblown sediment are commonly on the leeward side of the playas in this survey area. Although of limited extent, partially stabilized sand dunes provide important habitat for both predator and prey vertebrate wildlife. Kangaroo rats, kit foxes, and bobcats inhabit the sand dunes.

Sagebrush-grass plant communities are at the lower elevations (4,500 to 5,500 feet) in the survey area. The average annual precipitation at these elevations is between 8 and 10 inches.

Wyoming big sagebrush, Lahontan sagebrush (a newly recognized subspecies of low sagebrush), and, to a lesser extent, basin wildrye are the dominant shrubs. Windy sagebrush plants at the lower elevations in the survey area. Cool-season perennial grasses are potentially the dominant herbaceous plants in the sagebrush-grass plant communities. Thurber needlegrass, Indian ricegrass, bottlebrush squirreltail, and Sandberg bluegrass are important cool-season bunch grasses. Grazing pressure has been severe on the sagebrush-grass plant communities at the lower elevations. These plant communities are the first to begin growth, or "greenup," during the warming periods of early spring and have traditionally been used for spring grazing by livestock. Close grazing spring after spring will eventually eliminate the perennial understory of grasses and forbs.

Grazing management practices can enhance the long-term productivity of sagebrush-grass communities. These practices include deferred grazing during critical growth periods in spring, rotational grazing, and control of the intensity and season of use. Fencing, herding, water hauling, and controlling livestock access to watering facilities can achieve a better distribution of grazing and facilitate grazing management.

Very few sources of perennial water are available in the salt-desert shrub zone. Water developments are key elements in grazing management. Also, they can be of significant value to wildlife. Where the range condition has not deteriorated excessively and an adequate population of desirable perennial grasses and forbs is available to respond to a release from plant competition, brush management can greatly enhance the production of forage for livestock and wildlife.

The selection of plants available for range and seedling in the 8- to 10-inch precipitation zone is limited. Suitable species that are tolerant of early spring grazing, however, can be seeded. These species can play a key role in the management of grazing on the adjacent native sagebrush-grass and salt-desert shrub plant communities. Years of below normal precipitation are relatively frequent in this zone. Thus, the factors to be considered in managing rangeland seeding include the risk of seedling failure caused by climate.

Although the sagebrush-grass communities at the lower elevations may provide transitional spring range to pronghorn antelope moving from winter to summer ranges, plant communities that are dominated by big sagebrush are not heavily used by the antelope. Fencing can deter migration of the antelope because these animals commonly do not jump. As a result, the lower wire of the fences should be high enough for the antelope to crawl under. Where feasible, the fence lines should be routed so

that they cause the least disruption to antelope travel. Livestock water developments are beneficial to wildlife especially deer and antelope, if the water is available when the animals are in the area.

During severe winters in areas of the sagebrush-grass communities at the lower elevations, sage grouse may feed on sagebrush that has not been covered by snow. Heavy snow at the higher elevations forces chukar partridge to move into these areas in search of food. The sagebrush-grass communities at the lower elevations are used primarily by mule deer and feral horses as winter range or as a winter range. In spring, these areas are used by livestock. In areas used by deer as winter range should be managed so that the turn out of livestock is delayed until after spring "greenup" and the migration of most of the deer.

Sagebrush-grass communities are at intermediate elevations. The average annual precipitation at these elevations is between 10 and 14 inches.

Wyoming big sagebrush dominates the shrub canopy of the mid-elevation plant communities on the warmer, drier exposures. Basin big sagebrush is most common on the deeper soils at the lower elevations in this precipitation zone. Mountain big sagebrush is prevalent on the north aspects at the lower elevations of the zone and grows on all aspects at the higher elevations. Low sagebrush is the dominant dwarf sagebrush at the mid and upper elevations. Other shrubs include antelope bitterbrush, sagebrush, and sagebrush. Canby bluegrass, Sandberg bluegrass and basin wildrye are the major perennial grasses associated with these mid-elevation sagebrush-grass communities. Antelope bitterbrush is an important shrub in many plant communities at these elevations.

The mid-elevation sagebrush-grass communities are suitable for grazing by livestock in summer and fall. Deferred grazing during critical growth periods in spring and early summer, rotational grazing, and control of the intensity and season of use can enhance the long-term productivity of these communities. Fencing, herding, and strategically locating livestock watering facilities help to achieve a better distribution of grazing and facilitate grazing management. Relatively few sources of perennial water are available in areas of the mid-elevation sagebrush-grass zone. As a result, water developments and watering facilities are key elements in grazing management and can be of significant value to wildlife.

Wyoming big sagebrush communities at mid elevations are used primarily as winter range by mule deer. They commonly provide habitat for Brewer's sparrow, black-tailed jackrabbits and sagebrush lizards. They provide wintering areas for sage grouse. Low sagebrush communities provide important summer range for pronghorn antelope and brood-rearing habitat for sage grouse. Livestock water developments can be beneficial to wildlife especially deer and antelope if the water is available when the animals are in the area. Mountain big sagebrush and low sagebrush communities provide spring, summer, and fall range for mule deer and feral horses.

Seasonal grazing by livestock removes old grass residue and exposes the regrowth of succulent green stems and leaves that provide food for mule deer. The steep rock-faced cliffs common to these mid elevations have ledges, joints, cracks, and occasional caves and thus provide safe

sites for birds and small mammals to nest and rear their young. The common nongame species are sage thrasher, the Great Basin gopher snake, and desert mouse. Areas of exposed lava flow rock, natural breaks in the cliffs, and the associated talus commonly are used as travel lanes by wildlife, including mule deer.

Brush management practices can be very effective in increasing the production of native forage in the mid-elevation sagebrush-grass zone. They can be beneficial to wildlife as well as livestock. Opening up large homogeneous stands of sagebrush commonly improves the habitat for wildlife, such as mule deer and pronghorn antelope. Rangeland seeding may be required following the removal of woody vegetation where desirable understory plants are scarce or are not included in the present plant community. A number of forbs and grasses are suitable for dryland seeding in the 10-to 14-inch precipitation zone. Grazing suitable forbs in the seedling mixture helps to provide additional forage for wildlife, such as pronghorn antelope, mule deer, and sage grouse.

Western juniper plant communities are at mid-elevations. The local expansion of western juniper from woodland sites to the adjacent rangeland is common. The invasion of western juniper into sagebrush-grass communities has been attributed to overgrazing, a scarcity of naturally recurring fires, and climatic conditions. Young trees are readily killed by fire. The loss of fine fuel to carry fire and to a lesser extent, fire control have limited the frequency and extent of natural fires in the sagebrush-grass zone. This reduction in the frequency of fires has allowed seedlings to become established in increasing numbers on sites that at one time supported virtually no trees.

Livestock commonly concentrate on the woodland sites where the shade and shelter provided by the tree overstory. These sites also provide habitat for nongame wildlife species, including the bushy-tailed woodrat, the blue-grey gnat-catcher, and the American kestrel, thermal cover for mule deer, and habitat for small mammals and birds.

Areas that have a heterogeneous mixture of vegetative types, including grassland, low shrub, tall shrub, and tree-shrub communities, generally provide an optimum diversity of wildlife habitat. These types of vegetative complexes are common in the sagebrush-grass zones at the intermediate and upper elevations. Moderate browsing by cattle on antelope bitterbrush in fall can enhance the vigor and growth of the bitterbrush, which is later available for grazing by mule deer and antelope.

Stringer meadows are along spring-fed stream channels in the sagebrush-grass zones at the intermediate and upper elevations. Meadow vegetation also grows on the periphery of seeps and springs. Wet meadows adjacent to sagebrush stands are important as brood-rearing areas for sage grouse. During the first weeks after leaving the nest, sage grouse chicks eat mainly insects (ants and beetles) and the succulent forbs that are common in wet meadows. Grazing of the meadows by cattle can improve the quality of feed for sage grouse if a period of regrowth is provided for the key forb species. Grazing increases the succulence of the forbs by interrupting the maturation of the plant tissues. The succulent or young leaf tissue is higher in protein and lower in fiber than mature tissue. As they seek sources of succulent forbs, sage grouse select meadows that have been grazed by cattle. Sage grouse chicks find

food and cover in properly grazed meadows, which appear patchy because of different stubble heights remaining after livestock have grazed the meadows.

Improper grazing of riparian vegetation by livestock can cause gully erosion. This erosion, in turn, can result in lower water tables, the drying out of meadows, and the loss of valuable wildlife and livestock forage. Grazing management strategies that are sensitive to the development and maintenance of healthy riparian areas are needed.

The uppermost elevations of the survey area (5800 to 7000 feet) typically support high-elevation sagebrush-grass plant communities. The average annual precipitation ranges from 14 to more than 18 inches. Mountain big sagebrush and low sagebrush dominate the shrub canopy of these plant communities. The shrub understory grasses include daho fescue, western needlegrass, mountain brome, Columbia needlegrass, Letterman needlegrass, basin wildrye, slender wheatgrass, and bluebunch wheatgrass. Mountain browse species, such as snowberry, serviceberry, and antelope bitterbrush, are common in the shrub overstory. Curleaf mountain mahogany stands are at the highest elevations, on mountain summits and the upper side slopes. Areas of aspen woodland are common in concave pockets and along riparian zones.

Plant communities on the high-elevation sites are potentially very productive and normally respond rapidly to management. These sites remain cold and wet through spring and into early summer. They are used as summer range for livestock. Grazing should be delayed until the surface layer has dried sufficiently for compaction to be limited. Snow often blankets these sites by late fall, further restricting the period of livestock grazing. Steeply sloping areas are common throughout the high-elevation sagebrush-grass zone. Livestock tend to overuse the less sloping areas unless grazing is managed for an even distribution of grazing. Fencing, properly locating watering facilities, and herding force livestock to use areas that otherwise might remain ungrazed. Salt and mineral blocks should be placed away from water.

Mule deer use the high-elevation plant communities for summer range. North-facing slopes that have a patchwork of dense stands consisting of mountain browse are important deer fawning areas. These dense stands should be maintained because they provide cover for wildlife. Areas of aspen woodland provide important cover for wildlife and are a source of shade for livestock and wildlife.

Seeps and springs are common at the high elevations. Water for livestock generally is readily available. Additional water developments may be needed, however, to distribute the livestock evenly. Developed springs, pipelines, and storage tanks are dependable means of supplying water. Seeps and springs developed to provide livestock water can also be beneficial to wildlife. Excluding livestock by fencing the meadow around a seep or spring and piping the water to troughs or other storage facilities outside the enclosure help to protect the meadow vegetation grazed by wildlife. Enough water must be retained in the fenced seep or spring area to maintain the meadow vegetation. Small meadows can be developed and maintained by piping overflow water from livestock troughs into fenced areas.

Many naturally occurring meadows in the sagebrush-grass zones at the mid and higher elevations have been heavily invaded by big sagebrush. The sagebrush depletes moisture from the meadows. If the sagebrush is removed, the quantity of water and the duration of waterflow increase as grasses return to the meadows. Prescribed burning of dense sagebrush stands can be an economical means of brush management in the high-elevation sagebrush-grass zone. Brush management practices should be designed so that enough of the shrub canopy remains near meadows to provide cover for wildlife.

Rangeland seeding of the high-elevation plant communities is usually not necessary. In most areas, the remnant population of desirable forbs and grasses is sufficient to respond to grazing management and a release from shrub competition. Where rangeland seeding is needed, a wide variety of suitable species can be planted because of the relatively high annual precipitation in this zone.

Forest Land

Table 8 "Woodland Management and Productivity" can be used by forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed.

Woodland Ordination System

Table 8 "Woodland Management and Productivity" lists the ordination (woodland suitability) symbol for each soil. The ordination system is a nationwide uniform system of abbreviating soils or groups of soils that are similar in use and management. The primary factors evaluated in the woodland ordination system are productivity of the forest overstory tree species and the principal soil properties resulting in hazards and limitations that affect forest management. There are three parts of the ordination system: class, subclass, and group. The class and subclass are referred to as the ordination symbol.

Ordination Class Symbol

The first element of the ordination symbol is a number that denotes potential productivity in terms of cubic meters of wood per hectare per year for the indicator tree species. The larger the number, the greater the potential productivity. Potential productivity is based on site index and the corresponding culmination of mean annual increment. For example, the number 1 indicates a potential production of 1 cubic meter of wood per hectare per year (14.3 cubic feet per acre per year) and 10 indicates a potential production of 10 cubic meters of wood per hectare per year (143 cubic feet per acre per year).

Indicator species is a species that is common in the area and is generally, but not necessarily, the most productive on the soil. It is the species that determines the ordination class. It is the first species listed for a particular map unit in table 8. This table shows the productivity for all species where data have been collected.

Site index is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height in feet that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands. The site indexes shown in table 8 "Woodland Management and

Productivity," are averages based on measurements made at sites that are representative of the soil series. When the site index and forest land productivity of different soils are compared, the values for the same tree species should be compared. The higher the site index number, the more productive the soil for that species. Site index values are used in conjunction with yield tables to determine average annual yields. Indirectly, they are used to determine the productivity class in the ordination class symbol.

Ordination Subclass Symbol

The second element of the ordination symbol, or subclass, is a capital letter that indicates certain soil or physiographic characteristics that contribute to important hazards or limitations to be considered in management. The subclasses are defined as follows:

Subclass X indicates that forest and use and management are limited by stones or rocks.

Subclass W indicates that forest and use and management are significantly limited by excess water, either seasonally or throughout the year. Restricted drainage, a high water table, or flooding can adversely affect either stand development or management.

Subclass T indicates that the root zone has toxic substances. Excessive alkalinity, acidity, sodium salts, or other toxic substances impede the development of desirable species.

Subclass D indicates that forest and use and management are limited by a restricted rooting depth. The soil may be shallow, underlain by a hardpan or other restrictive layers in the soil.

Subclass C indicates that forest and use and management are limited by the kind or amount of clay in the upper part of the soil.

Subclass S indicates that the soil is sandy, has a low available water capacity, and normally has a low content of available plant nutrients. The use of equipment is limited during dry periods.

Subclass F indicates that forest and use and management are limited by a high content of rock fragments that are larger than 2 millimeters and smaller than 10 inches. This subclass includes flaggy soils.

Subclass R indicates that forest and use and management are limited by excessive slope.

Subclass A indicates that no significant limitations affect forest land use and management.

Forest Land Management and Productivity

Information about the productivity and management of the forested map units in the survey area is given in table 8, "Wood and Management and Productivity."

Management Concerns

In table 8, "Wood and Management and Productivity," the soils are rated for the erosion hazard, the equipment limitation, seedling mortality, the windthrow hazard, and plant competition.

The *erosion hazard* is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive soil loss.

The *equipment limitation* is *slight* if the use of equipment is not limited to a particular kind of equipment or time of year, *moderate* if there is a short seasonal limitation or a need for some modification in the management of equipment, and *severe* if there is a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings are for seedlings that are from a good planting stock and that are properly planted during a period of average rainfall. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than

25 percent, *moderate* 25 to 50 percent, and *severe* more than 50 percent.

Windthrow hazard is *slight* if trees in wooded areas are not expected to be blown down by commonly occurring winds, *moderate* if some trees are blown down during periods of excessive soil wetness and strong winds, and *severe* if many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

Plant competition is *slight* if there is little or no competition from other plants, *moderate* if plant competition is expected to hinder the development of a fully stocked stand of desirable trees, and *severe* if plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

Potential Productivity

The potential productivity of merchantable or *common* trees is expressed as a site index, which is described under the heading *Ordination Class Symbol*. Commonly grown trees are those that forest land managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. If food, cover, or water is missing, inadequate, or inaccessible, wildlife will be scarce or will not inhabit the area.

If the soils have potential for habitat development, wildlife habitat can be created or improved by planting appropriate vegetation, properly managing the existing plant cover, and fostering the natural establishment of desirable plants. The soils in the survey area are rated in table 9, "Wildlife Habitat."

Elements of Wildlife Habitat

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants used by wildlife. Examples are wheat, rye, oats, and barley.

Grasses and legumes are domestic perennials, grasses, and herbaceous legumes planted for wildlife food and cover. Examples are fescue, brome grass, timothy, orchard grass, clover, alfalfa, lespedeza, and reed canarygrass.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Examples are goldenrod, ambrosia, arrowweed, balsam poplar, dandelions, ragweed, wheatgrass, fescue, and nightshade.

The major soil properties affecting the growth of grain and forage crops and wild herbaceous plants are depth of the root zone, texture of the surface layer, the amount of water available to plants, wetness, salinity or sodicity, and flooding. The length of the growing season also is important.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage that wildlife eat. Examples are oak, cottonwood, quaking aspen, boxelder, maple, green ash, and willow. Examples of fruit-producing shrubs that are suitable for planting on soils that have good potential for these plants are hawthorn, honeysuckle, American plum, redosier, dogwood, chokecherry, serviceberry, and silver buffaloberry.

Coniferous plants are cone-bearing trees, shrubs, or ground cover that provide habitat or supply food in the form of browse, seed, or fruitlike cones. Examples are pine, spruce, hemlock, fir, and juniper.

The major soil properties affecting the growth of hardwood and coniferous trees and shrubs are depth of root zone, the amount of water available to plants, and wetness.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Wetland plants produce food or cover for wetland wildlife. Examples of these plants are smartweed, rushes, sedges, bulrushes, and cattail.

The major soil properties affecting wetland plants are texture of the surface layer, wetness, acidity or alkalinity, and slope.

Shallow water areas have an average depth of less than 5 feet. They are useful as habitat for some wildlife species. They are naturally wet areas or are created by dams, levees, or water-control measures in marshes or streams. Examples are muskrat marshes, waterfowl feeding areas, wildlife watering developments, beaver ponds, and other wildlife ponds.

The major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability.

Kinds of Wildlife Habitat

Habitat for openland wildlife consists of crop and pasture, meadows, and areas that are overgrown with grasses, herbs, and shrubs. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include Hungarian partridge, pheasant, sage grouse, meadowlark, field sparrow, killdeer, cottontail, rabbit, and red fox.

Habitat for wood and wildlife consists of areas of hardwoods or conifers or a mixture of these and associated grasses, legumes, and wild herbaceous plants. The wildlife attracted to this habitat include wild turkey, grouse, thrushes, woodpeckers, owls, porcupine, raccoon, deer, and elk.

Habitat for wetland wildlife consists of open, marshy, or swampy, shallow water areas that support water-tolerant plants. The wildlife attracted to this habitat include ducks, geese, herons, bitterns, rails, kingfishers, muskrat, and beaver.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. The wildlife attracted to rangeland include antelope, mule deer, sage grouse, meadowlark, and lark bunting.

Recreation

The soils of the survey area are rated in table 10, "Recreational Development," according to limitations that affect the suitability for recreation. The ratings are based on restrictive soil features such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites, and either access to public sewer lines or the capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degrees, for recreational uses by the duration of flooding and the season when it occurs. Onsite assessment of the height, duration, intensity, and frequency of flooding is essential in planning recreational facilities.

Camp areas are tracts of land used intensively as sites for tents, trailers, and campers and for outdoor activities that accompany such sites. These areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The soils are rated on the basis of soil properties that influence the ease of developing camp areas and performance of the areas after development. Also considered are the soil properties that influence trafficability and promote the growth of vegetation after heavy use.

Picnic areas are natural or landscaped tracts of land that are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The soils are rated on the basis of soil properties that influence the cost of shaping the site, trafficability, and the growth of vegetation after development. The surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry.

Playgrounds are areas used intensively for baseball, football, or similar activities. These areas require a nearly level soil that is free of stones and that can withstand heavy foot traffic and maintain an adequate cover of vegetation. The soils are rated on the basis of soil properties that influence the cost of shaping the site, trafficability, and the growth of vegetation. Slope and stoniness are the main concerns in developing playgrounds. The surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry.

Paths and trails are areas used for hiking and horseback riding. The areas should require little or no cutting and filling during site preparation. The soils are rated on the basis of soil properties that influence trafficability and erodibility. Paths and trails should remain firm under foot traffic and not be dusty when dry.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the growing season. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

The interpretative ratings in this table help engineers, planners, and others to understand how soil properties influence recreational uses. Ratings for proposed uses are given in table 11, "Building Site Development," and table 12, "Sanitary Facilities." Other features may limit a specific recreational use.

The degree of soil limitation is expressed as a light, moderate, or severe.

Slight means that soil properties are favorable for the rated use. The limitations are minor and can be easily overcome. Good performance and low maintenance are expected.

Moderate means that soil properties are moderately favorable for the rated use. The limitations can be overcome or modified by special planning, design, or maintenance. During some part of the year, the expected performance may be less desirable than that of soils rated slight.

Severe means that soil properties are unfavorable for the rated use. Examples of limitations are slope, bedrock near the surface, flooding, and a seasonal high water table. These limitations generally require major soil reclamation, special design, or intensive maintenance. Overcoming the limitations generally is difficult and costly.

The information in the table "Recreational Development," can be supplemented by other information in this survey, for example, interpretations for dwellings without basements and for local roads and streets in table 11, "Building Site Development," and interpretations for septic tank absorption fields in table 12, "Sanitary Facilities."

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for

construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure, aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields; of soils and geology, locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and

pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the "Glossary."

Building Site Development

Table 11, "Building Site Development," shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features generally are favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a ~~seasonal~~ *seasonal* high water table, dense ~~are~~ *are* stone content, soil texture, and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can

cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills generally are limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength, as indicated by the *consistency* classification of the soil, shrink-swell potential, potential for frost action, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 12, "Sanitary Facilities," shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. It also shows the suitability of the soils for use as a daily cover for landfill.

Soil properties are important in selecting sites for sanitary facilities and in identifying limiting soil properties and site features to be considered in planning, design, and installation. Soil limitation ratings of *slight*, *moderate*, or *severe* are given for septic tank absorption fields, sewage lagoons, and trench and area sanitary landfills. Soil suitability ratings of *good*, *fair*, and *poor* are given for daily cover for landfill.

A rating of *slight* or *good* indicates that the soils have no limitations or that the limitations can be easily overcome. Good performance and low maintenance can be expected. A rating of *moderate* or *fair* indicates that the limitations should be recognized but generally can be overcome by good management or special design. A rating of *severe* or *poor* indicates that overcoming the limitations is difficult or impractical; increased maintenance may be required.

Septic tank absorption fields are areas in which subsurface systems of tile or perforated pipe distribute effluent from a septic tank into the natural soil. The center line of the tile is assumed to be at a depth of 24 inches. Only the part of the soil between depths of 24 and 60 inches is considered in making the ratings. The soil properties and site features considered are those that affect the absorption of the effluent, those that affect the construction and maintenance of the system, and those that may affect public health.

The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and excessive seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted, relatively impervious soil material. Aerobic lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Relatively impervious soil material for the lagoon floor and sides is desirable to minimize seepage and contamination of local ground water.

Table 12, "Sanitary Facilities," gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and a high water table can cause problems in operation.

Trench sanitary landfill is an area where solid waste is disposed of by placing refuse in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil that is excavated from the trench. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. Soil properties that influence the risk of pollution, the ease of excavation, trafficability, and revegetation are the major considerations in rating the soils.

Area sanitary landfill is an area where solid waste is disposed of by placing refuse in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil that is imported from a source away from the site. A final cover of soil at least 2 feet thick is placed over the completed landfill. Soil properties that influence trafficability, revegetation, and the risk of pollution are the main considerations in rating the soils for area sanitary landfills.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. The ratings in the table "Sanitary Facilities" are based on soil properties, site features, and observed

performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The suitability of a soil for use as cover is based on properties that affect workability and the ease of moving, covering, and spreading the material over the refuse daily during both wet and dry periods.

Soil texture, wetness, rock fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread. Sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Waste Management

Soil properties are important when organic waste is applied as fertilizer and wastewater is applied in irrigated areas. They also are important when the soil is used as a medium for the treatment and disposal of the organic waste and wastewater. Unfavorable soil properties can result in environmental damage.

The use of organic waste and wastewater as production resources results in energy and resource conservation and minimizes the problems associated with waste disposal. If disposal is the goal, applying a maximum amount of the organic waste or the wastewater to a minimum area holds costs to a minimum and environmental damage is the main hazard. If reuse is the goal, a minimum amount should be applied to a maximum area and environmental damage is unlikely.

Interpretations developed for waste management may include ratings for manure- and food-processing waste materials, sewage sludge use, wastewater treatment, and treatment of wastewater by slow rate, overland flow and rapid infiltration processes.

Specific information regarding waste management is available at the local office of the Natural Resources Conservation Service or Nevada Cooperative Extension.

Construction Materials

Table 13, "Construction Materials," gives information about the soils as a source of roadfill, sand, gravel, and

topsoil. The soils are rated *good*, *fair*, or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In table 13, "Construction Materials," the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers below the surface layer are of similar quality. Many soils have layers of material that are not suitable for use as roadfill. Table 15, "Engineering Index Properties," provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel, or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have one or more of the following characteristics: a plasticity index of more than 10, a high shrink-swell potential, many stones, slopes of more than 25 percent, or a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table "Construction Materials," only the soils that are suitable for use as sand and gravel are listed. Below the soil is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in table 15, "Engineering Index Properties."

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is as much as 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a

soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils generally is preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 14, "Water Management," gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas, embankments, dikes, and levees, and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features

are minor and are easily overcome, *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations, and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential and no perched water. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In table 14, "Water Management," the soils are rated as a source of material for embankment fill. The ratings apply to

the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even more than the height of the embankment can affect performance and safety of the embankment. Generally, deeper on-site investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the base of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement, permeability, depth to a high water table, or depth of standing water if the soil is subject to ponding, slope, susceptibility to flooding, subsidence of organic layers, and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff.

Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of soil blowing or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect

the construction of grassed waterways. A hazard of soil blowing, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and

restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features listed in tables are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory tests of selected soil benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 15, "Engineering Index Properties" gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given in the series descriptions in Part I of this survey.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the "Glossary."

Classification of the soils is determined according to the system adopted by the American Association of State Highway and Transportation Officials (1) and the Unified soil classification system (2).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GL, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils are also designated according to properties. Some groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of particles larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series) have openings of 4.75, 2.00, 0.425, and 0.075 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and **plasticity index** (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Tables 16 "Physical Properties of the Soils" and table 17, "Chemical Properties of the Soils," show estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given in the series descriptions in Part I of this survey.

Clay as a soil separate or component consists of mineral soil particles that are less than 0.002 millimeter in diameter. The estimated clay content of each major soil layer is given as a percentage by weight of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In the table "Physical Properties of the Soils," the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals

with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place.

Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special designs are often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, more than 9 percent, is sometimes used.

Organic matter is the plant and animal residue in the soil. In table 16 "Physical Properties of the Soils," the estimated content of organic matter is given as a percentage by weight of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by proper management. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, very fine sand, sand, and organic matter (as much as 4 percent) and on soil structure and

rock fragments. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion.

Erosion factor Ki indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to soil blowing in cultivated areas. The groups indicate the susceptibility of soil to soil blowing. Soils are grouped according to the following distinctions:

1. Coarse sands, sands, fine sands, and very fine sands. These soils generally are not suitable for crops. They are extremely erodible and vegetation is difficult to establish.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, and sapric soil material. These soils are very highly erodible. Crops can be grown if intensive measures to control soil blowing are used.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control soil blowing are used.
4. Calcareous loams, silt loams, clay loams, and silty clay loams that have more than 5 percent finely divided calcium carbonate. These soils are highly erodible. Crops

can be grown if intensive measures to control soil blowing are used.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control soil blowing are used.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material. These soils have less than 5 percent finely divided calcium carbonate. These soils are moderately erodible. Crops can be grown if measures to control soil blowing are used.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that

5 percent finely divided calcium carbonate. These soils are moderately erodible. Crops can be grown if ordinary measures to control soil blowing are used.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils have less than 5 percent finely divided calcium carbonate. These soils are very slightly erodible. Crops can be grown if ordinary measures to control soil blowing are used.

8. Soils that are not subject to soil blowing because of rock fragments on the surface or because of surface wetness.

A. Susceptibility of soil to soil blowing, or the tons per acre

There is a close correlation between soil blowing and the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence soil blowing.

Cation-exchange capacity is the total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. Soils having a high cation-exchange capacity can retain cations. The ability to retain cations helps to prevent the pollution of ground water.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of

many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the soil. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrate accumulation and ammonium-N volatilization.

Calcium sulfate is the gypsum in the soil. Gypsum is partially soluble in water and can be dissolved and removed by water. Soils that have a high content of gypsum (more than 10 percent) may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract in millimhos per centimeter at 25

degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of the soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio is the measure of sodium relative to calcium and magnesium in the water extract from saturated soil paste. Soils having a sodium adsorption ratio of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 18, "Water Features," gives estimates of several important water features used in land use planning that involves engineering considerations. These features are described in the following paragraphs.

Hydrologic soil groups are groups of soils that, when saturated, have the same runoff potential under similar storm and ground cover conditions. The soil properties that affect the runoff potential are those that influence the minimum rate of infiltration in a bare soil after prolonged wetting and when the soil is not frozen. These properties include the depth to a seasonal high water table, the

depth to a very slowly permeable layer. The influences of ground cover and slope are treated independently and are not taken into account in hydrologic soil groups.

In the definitions of the hydrologic soil groups, the **infiltration rate** is the rate at which water enters the soil at the surface and is controlled by surface conditions. The **transmission rate** is the rate at which water moves through the soil and is controlled by properties of the soil layers.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate, low runoff potential when thoroughly wet. These consist chiefly of very deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep, moderately well drained to well drained soils that have a moderately fine to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils that have a moderately fine or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clayey soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the

surface and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding—the temporary covering of the soil surface by flowing water—is caused by overflow from streams or by runoff from adjacent slopes. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in marshes and swamps or in closed depressions is considered to be ponding.

Table 18 "Water Features" gives the frequency and duration of flooding and the time of year when flooding is most likely to occur. Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as none, rare, occasional, or frequent. *None* means flooding is not probable; *rare* that it is unlikely but is possible under unusual weather conditions; the chance of flooding is nearly 0 percent to 5 percent in any year; *occasional* that it occurs infrequently under normal weather conditions; the chance of flooding is 5 to 50

under normal weather conditions (the chance of flooding is 50 percent in any year). The term *common* includes both frequent and occasional flooding.

Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 to 30 days), and *very long* (more than 30 days). The time of year that flooding is

thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and the or no horizon development.

As considered are local information about the extent and level of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that

flood-prone areas at specific flood frequency levels.

High water table (seasonal) is a zone of saturation at the highest average depth during the wettest season. It is at least 6 inches thick, persists in the soil for more than a few weeks, and is within 6 feet of the surface. Indicated in the table "Water Features" are the depth to the seasonal high water table, the kind of water table, and the months of the year when the water table usually is highest.

An **apparent water table** is indicated by the level at which water stands in a test hole, but it is not necessarily adequate time for adjustments in the surrounding soil.

A **perched water table** is one that is above an unsaturated zone in the soil. The basis for determining that a water table is perched may be general knowledge of the area. The water table is proven to be perched if the water level in a borehole is observed to fall when the borehole is extended.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first number in the range indicates the highest water level. A **perched water table** is above the surface of the soil. More than 6' 0" indicates that the water table is below a depth of 6

feet or that it is within a depth of 6 feet for less than a month.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation.

Soil Features

Table 19 "Soil Features" gives estimates of several important soil features used in land use planning that involves engineering considerations. These features are described in the following paragraphs.

Depth to bedrock is given if bedrock is within a depth of 60 inches. The depth is based on many soil borings and

as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

A **cemented pan** is a nearly continuous layer of indurated or strongly cemented material that is hard and brittle. The particles are held together by cementing substances, such as calcium carbonate and oxides of silicon, iron, or aluminum. Pans are identified when they are within a depth of 60 inches. They are classified as thin or thick. A **thin pan** can be excavated by trenching machines, backhoes, small rippers, and other equipment commonly used to dig excavations for pipe lines, sewer lines, and graves. A **thick pan** is so thick or massive that blasting or special equipment is needed when excavations are made.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table "Soil Features" shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured clayey soils that have a high water table in winter are the most susceptible to

potential frost action. Very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

A low potential for frost action indicates that the soil is rarely susceptible to the formation of ice lenses; a moderate potential indicates that the soil is susceptible to formation of ice lenses, resulting in frost heave and the subsequent loss of soil strength; and a high potential

and cates that the soil is highly susceptible to formation of ice lenses resulting in frost heave and the subsequent loss of soil strength.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil.

Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel installations that intersect soil boundaries or soil layers is more susceptible to corrosion

than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well-aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases) or both that plant growth is restricted.

Alluvial cone. The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.

Alluvial fan. The fan-like deposit of a stream where it issues from a narrow valley upon a plain, or of a tributary stream near or at its junction with its main stream.

Alluvial flat. A nearly level, graded alluvial surface in bolsons and semi-bolsons. Commonly, an alluvial flat does not manifest terraces or floodplain levels.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redox-morphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redox-morphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Argillite. Weakly metamorphosed mudstone or shale.

Arroyo. The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic

repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity).

The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 1.5
Low	1.5 to 3
Moderate	3 to 7.5
High	more than 7.5

Avalanche chute. The track or path formed by an avalanche.

Back slope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Backswamp. A floodplain landform of extensive marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft, easily eroded material. A badland may range from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Baïena. A remnant, slightly distinctively rounded surface of fan alluvium. The baïenas broadly rounded shoulders meet from either side to form a narrow summit and merge smoothly with concave short pediments which form smoothly-rounded drainageways between adjacent baïenas. A partial baïena is a fan remnant large enough to retain some relict fan surface on a remnant summit.

Barrier beach. A wide, gently sloping portion of a bolson floor comprising numerous parallel relict longshore bars and lagoons built by a receding pluvial lake.

Basal area. The area of a cross section of a tree generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K).

- expressed as a percentage of the total cation-exchange capacity.
- Basin floor.** A general term for the nearly level lower most part of intermontane basins, i.e., bolson semi-basins. The basin floor includes a) of the alluvial, eolian, and erosional landforms below the piedmont slope.
- Beach terrace.** The relict shorelines from pluvial lakes generally restricted to valley sides.
- Bedding planes.** Fine strata, less than 5 millimeters thick in unconsolidated alluvial, eolian, lacustrine, or marine sediment.
- Bodding system.** A drainage system made by plowing.  It consists of a series of low ridges separated by shallow parallel dead furrows.
- Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.
- Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.
- B sequence.** Two sequences of soil horizons, each of which consists of an alluvial horizon and the overlying eluvial horizons.
- Blowout.** A shallow depression from which all or most of the soil material has been removed by wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts, the water table is exposed.
- Board foot.** A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board one foot wide, one foot long, and one inch thick before finishing.
- Bolson.** A landscape term for an internally drained intermontane basin into which drainages from surrounding mountains converge inward toward a central depression.
- Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.
- Breaks.** The steep and very steep broken land at the border of an upland summit that is dissected by ravines.
- Breast height.** An average height of 4.5 feet above the ground surface, the point on a tree where diameter measurements are ordinarily taken.
- Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.
- Butte.** An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.
- Calcareous soil.** A soil containing enough calcium carbonate, commonly combined with magnesium carbonate, to effervesce visibly when treated with cold dilute hydrochloric acid.
- Caldera.** A large, more or less circular depression formed by explosion and/or collapse, which surrounds a volcanic vent or vents, and whose diameter is much greater than that of the included vent or vents.
- Caliche.** A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft thin layers in the soil or as hard, thick beds directly beneath the soil or if it is exposed at the surface by erosion.
- California bearing ratio (CBR).** The load-supporting capacity of a soil as compared to that of a standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone per unit area with the same degree of distortion.
- Canopy.** The leafy crown of trees or shrubs. See Crown.
- Canyon.** A long, deep, narrow, very steep-sided valley with high, precipitous walls in an area of high local relief.
- Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- Catena.** A sequence or "chain" of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.
- Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- Channeled.** Refers to a drainage area in which natural meandering or repeated branching and convergence  either active or abandoned, in a fluvial material.
- Channery soil material.** Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a chanter.
- Chemical treatment.** Control of unwanted vegetation through the use of chemicals.
- Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard compacted layers to a depth below normal plow depth.
- Clay.** As a soil, separate the mineral soil particles less than 0.002 millimeter in diameter. As a soil texture class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the

- removal of iron, manganese, and clay. A type of redoximorphic depletion.
- Clayey soil.** Soil clay, sandy clay, or clay.
- Clay film.** A thin coating of oriented clay crystals on a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- Claypan.** A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.
- Clearcut.** A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from adjacent stands.
- Climax plant community.** A community that has developed on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.
- Closed depression.** A low area completely surrounded by higher ground and having no natural outlet.
- Coarse fragments.** Mineral or rock particles larger than 2 millimeters in diameter.
- Coarse textured soil.** Sand or loamy sand.
- Cobble (or cobblestone).** A rounded, partly rounded, or angular fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
- Cobbly soil material.** Material that is 15 to 35 percent by volume rounded or partly rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.
- Codominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.
- Colluvium.** Unconsolidated, unsorted earth material moved and deposited by mass movement on sideslopes and at the base of slopes.
- Commercial forest.** Forest land capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.
- Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water control structures on a complex slope is difficult.
- Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small an area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- Compressible (in tables).** Excessive decrease in volume of soft soil under load.
- Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane that typically takes the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.
- Conglomerate.** A coarse grained, clastic rock composed of rounded to subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.
- Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.
- Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.
- Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration, plasticity, toughness, and slickness of puddled soil material and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."
- Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean tilled crops or summer fallow.
- Control section.** The part of the soil on which classification is based. The thickness varies among soil types. It is the part of the soil profile between depths of 10 inches and 40 or 80 inches.
- Coprogenous earth (sedimentary peat).** Fecal material deposited in water by aquatic organisms.
- Corrosion.** Soil induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
- Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- Cropping system.** Growing crops according to a planned system of rotation and management practices.
- Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.
- Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.
- Crown.** The upper part of a tree or shrub including the living branches and their foliage.
- Cuesta.** A hill or ridge that has a gentle slope on one side and a steep slope on the other, specifically an asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.
- Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase.

The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables) The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deep soil. A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Deferred grazing. Postponing grazing of a certain area of land for a prescribed period.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped, deposited at or near the mouth of a river or stream where it enters a body of relative, quiet water, generally a sea or lake.

Dense layer. A layer of soil that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables) Bedrock is too near the surface for the specified use.

Desert pavement. On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

Dip slope. A slope that is by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips or bands across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Dominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized: excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff or surface flow of water from an area.

Drainageway. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune. A mound, ridge, or hill of loose, windblown granular material, generally sand, either bare or covered with vegetation.

Ecological Site. A distinctive kind of rangeland or grazed forestland that has a unique historic potential native plant community. Ecological sites are the products of all the environmental factors that affect the development. An ecological site is capable of supporting a native plant community that has a unique production. Ecological sites in grazed forestland include both overstory and understory vegetation.

Effervescence. The quality of a soil measured when drops of diluted (1:10) hydrochloric acid (HCl) are added to the soil. The ratings are as follows:

Very slightly effervescent	few bubbles
Slightly effervescent	bubbles readily
Strongly effervescent	bubbles form low foam
Violently effervescent	bubbles form thick foam quickly

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action. Commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at a times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep. *Erosion* (geologic) Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym natural erosion. *Erosion* (accelerated) Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

- Erosion pavement.** A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.
- Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.
- Even aged.** Refers to a stand of trees in which only small differences in age occur between the individuals. A range of 20 years is allowed.
- Excess alkali (in tables).** Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.
- Excess fines (in tables).** Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.
- Excess lime (in tables).** Excess carbonates in the soil that restrict the growth of some plants.
- Excess salts (in tables).** Excess water-soluble salts in the soil that restrict the growth of most plants.
- Excess sodium (in tables).** Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.
- Excess sulfur (in tables).** Excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.
- Extrusive rock,** igneous rock derived from deep-seated molten matter (magma), emplaced on the earth's surface.
- Fallow.** Crop and left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.
- Fan apron.** A sheet-like mantle of relatively young alluvium covering part of an older fan piedmont surface. It somewhere buries a soil that can be traced to the edge of the fan apron.
- Fan piedmont.** The most extensive landform on piedmont slopes, formed by the coalescence of alluvial fans or accretions of fan aprons into one generally smooth slope.
- Fan remnant.** A general term for landforms that are remaining parts of older fan-landforms that either have been dissected or partially buried.
- Fan skirt.** The zone of smooth, laterally-coalescing small alluvial fans that issue from gullies cut into the fan piedmont or that are the coalescing extensions of inset fans of the fan piedmont, and that merge with the basin floor.
- Fast intake (in tables).** The rapid movement of water into the soil.
- Fertility, soil.** The quality that enables a soil to provide plant nutrients in adequate amounts and in proper balance for the growth of specified plants when light, moisture, temperature, pH, and other growth factors are favorable.
- Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well-preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil materials.
- Field moisture capacity.** The moisture content of a soil at field capacity, expressed as a percentage of the oven-dry weight after the gravitational or free water has drained away, the field moisture content 2 or 3 days after a soaking rain, also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.
- Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.
- Fine textured soil.** Sandy clay, silty clay, or clay.
- Firebreak.** An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of fire fighters and equipment. Designated roads also serve as firebreaks.
- First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.
- Flaggy soil material.** Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material is 35 to 60 percent flagstones, and extremely flaggy soil material is more than 60 percent flagstones.
- Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.
- Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.
- Fluvial.** Of or pertaining to rivers, produced by river action as a fluvial plain.
- Foothill.** A steeply sloping upland that has a rise of as much as 1,000 feet (300 meters) and fringes a mountain range or high plateau escarpment.
- Foot slope.** The inclined surface at the base of a hill.
- Forb.** Any herbaceous plant not a grass or a sedge.
- Forest cover.** All trees and other woody plants (underbrush, covering the ground) in a forest.
- Fragile (in tables).** A soil that is easily damaged by use or disturbance.
- Frost action (in tables).** Freezing and thawing of soil moisture. Frost action can damage roads, buildings, and other structures, and plant roots.
- Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the soil, or true soil from the unconsolidated parent material.
- Gilgai.** The microrelief of clayey soils that shrink and swell considerably with changes in moisture content. Usually manifested as a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope.
- Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- Graded strip cropping.** Growing crops in strips that grade toward a protected waterway.
- Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.
- Gravelly soil material.** Material that is 15 to 50 percent by volume rounded or angular rock fragments, not

prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Gypsum. A mineral consisting of hydrous calcium sulfate.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxides, silica, calcium carbonate, or other substance.

Heavy metal. Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.

Hemic soil material (mucky peat). Organic soil material

less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain; if properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well-defined outline. Hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Holocene. The epoch of the Quaternary Period of geologic time extending from the present

to the Pleistocene Epoch (about 10 to 12 thousand years ago) to the present.

Horizon, soil. A layer of soil approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon. The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon. The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon. The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as: (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the soil was formed. If the material is known to differ from that in the soil, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon. Soft consolidated bedrock beneath the soil.

R layer. Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well-decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuvial. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water at all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Inset fan. A special case of the flood plain of an ephemeral stream that is confined between fan remnants, basin floor remnants, benches, or closely opposed fan toes.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast intake rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake in inches per hour is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream or reach of a stream that flows for prolonged periods only when it receives groundwater discharge or long continued contributions from melting snow or other surface and shallow subsurface sources.

Intermontane basin. A generic term for wide structural depressions between mountain ranges that are partly filled with alluvium. They may be drained internally, by poisons, or externally, by semi-poisons.

Invasives. On range plants that encroach into an area and now alter the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:
Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.
Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes or borders.
Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.
Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.
Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing or perforated pipe.
Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.
Sprinkler. Water is sprayed over the soil surface through pipes or nozzles from a pressure system.
Subirrigation.—Water is applied in open ditches or lines until the water table is raised enough to wet the soil.
Wild flooding. Water released at high points is allowed to flow onto an area without controlled distribution.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lagoon. The nearly level, filled depression behind the longshore bar on a barrier beach.

Lake plain. A surface marking the floor of an extinct lake filled in by well sorted, stratified sediments.

Lake terrace. The narrow shelf produced along a lake shore and later exposed when the water recedes.

Lamella. A thin, generally horizontal layer of fine material overlaid within a very much thicker, coarser elevated layer.

Landform. Any recognizable form or feature on the earth's surface, having a characteristic shape and produced by natural causes that provide an empirical description of similar portions of the earth's surface.

Landscape. A collection of related natural landforms.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches, 7.6 centimeters, or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy soil. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

Loess. Fine grained material, dominantly of silt sized particles, deposited by wind.

Longshore bar. A narrow, elongate, coarse-textured ridge, built by the wave action of a pluvial lake, that extends parallel to the shore and separated it from a lagoon; both the bar and lagoon are now relict features.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return the organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum, or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mean annual increment (MAI). The average annual increase in volume of a tree during the entire life of the tree.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Merchantable trees. Trees that are of sufficient size to be economically processed into wood products.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately deep soil. A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: *abundance—few, common, and many; size—fine, medium, and coarse; and contrast—faint, distinct, and prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Muck. Dark, finely divided, well-decomposed organic soil material. (See Sapric soil material.)

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Naatric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and

manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redox-morphic concentrations.

Nutrient plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Observed rooting depth. Depth to which roots have been observed to penetrate.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Overstory. The trees in a forest that form the upper crown layer.

Oxbow. The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan*, and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Paria dune. An eolian dune built of sand-size aggregates of clayey material that commonly occurs leeward of a playa.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pediment. A gently sloping erosional surface developed at the foot of a receding hill or mountain slope.

Pedisegment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher-lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three-dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percolates slowly. (in tables.) The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is $K = \frac{Q}{A \cdot L} \cdot \frac{h}{t}$, which is defined in the "Soil Survey Manual." In the K section of the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability measured in inches per hour are as follows:

Extremely slow	0.00 to 0.01 inch
Very slow	0.01 to 0.05 inch
Slow	0.05 to 0.2 inch
Moderately slow	0.2 to 0.5 inch

Moderate	0.6 inch to 2.0 inches
Moderately rapid	< 0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piedmont slope. The dominant slope at the foot of a mountain. Main components of the piedmont slope include pediments, alluvial fans, fan piedmonts, fan skirts, and inset fans.

Piping (in tables). Formation of subsurface tunnels or pipe-like cavities by water moving through the soil.

Pitting. They form on the soil after plant cover is removed.

Plasticity index. The numerical difference between the liquid limit and the plastic limit, the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. occupies the lowest parts of closed depressional areas such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Pleistocene. The epoch of the Quaternary Period of approximately 2 million to 10 thousand years ago.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Pluvial. Relating to former periods of abundant rains.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter. permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a crop or for supporting a particular species for management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Quartzite, metamorphic. Rock consisting mainly of quartz that formed through recrystallization of quartz-rich sandstone or chert.

Quaternary. The period of geologic time extending from about 2 million years ago to the present and comprising two epochs: the Pleistocene (Ice Age) and Holocene (Recent).

Quartzite, sedimentary. Very hard but unmetamorphosed sandstone consisting chiefly of quartz grains.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soil. A measure of acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity expressed as pH values are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of

iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to a phenylphenolpyridine, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regeneration. The new growth of a natural plant community developing from seed.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface. The loose earth material above the solid rock.

Relict stream terrace. One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

Relief. The elevations or inequalities of a land surface considered collectively.

Residuum (residual soil material). Unconsolidated weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Riverwash. Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more, for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Rooting depth. (in tables) Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Rubble land. Areas that have more than 90 percent of the surface covered by stones or boulders. Voids contain no soil material and virtually no vegetation other than lichens. The areas commonly are at the base of mountain slopes, but some are on mountain slopes as deposits of cobbles, stones, and boulders left by Pleistocene glaciation or by periglacial phenomena.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called groundwater runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Salinity. The electrical conductivity of a saline soil. It is expressed in millimhos per centimeter as follows:

Nonsaline	0 to 2
Very slightly saline	2 to 4
Slightly saline	4 to 8
Moderately saline	8 to 16
Strongly saline	More than 16

Salty water. (in tables) Water that is too salty for consumption by livestock.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil texture class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sand sheet. A large, irregularly shaped surficial mantle of eolian sand.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy soil. Sand or loamy sand.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of a organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sawlogs. Logs of suitable size and quality for the production of lumber.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more friable soil.

Scribner's log rule. A method of estimating the number of board feet that can be cut from a log of a given diameter and length.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage. (in tables) The movement of water through the soil. Seepage adversely affects the specified use.

Semi-bolson. An intermontane basin that is drained externally by an intermittent stream.

Sequum. A sequence consisting of an alluvial horizon and the overlying eluvial horizon. (See Elevation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shelterwood system. A forest management system requiring the removal of a stand in a series of cuts so that regeneration occurs under a partial canopy. After regeneration, a final cut removes the shelterwood and allows the stand to develop in the open as an even-aged stand. The system is well suited to sites where shelter is needed for regeneration, and it can aid regeneration of the more intolerant tree species in a stand.

Shoulder slope. The uppermost inclined surface at the top of a hillside. It is the transition zone from the back slope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune. A small dune that forms around shrubs or small trees.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil: separate individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.35 millimeter). As a soil texture class: soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site class. A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

Site curve (50-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for the range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 50 years old or are 50 years old at breast height.

Site curve (100-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 100 years old or are 100 years old at breast height.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in

a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Skid trails. Pathways along which logs are dragged to a common site for loading onto a logging truck.

Slash. The branches, bark, treetops, reject logs, and broken or uprooted trees left on the ground after logging.

Slickens. Accumulations of fine-textured material, such as material separated in placer mine and ore-mill operations. Slickens from ore mills commonly consist of freshly ground rock that has undergone chemical treatment during the milling process.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of steep surfaces on the steeper slopes, on faces of blocks, prisms, and columns, and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, the following slope classes are recognized:

Nearly level	0 to 2 percent
Slightly sloping	2 to 4 percent
Moderately sloping	4 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 50 percent
Very steep	50 to 75 percent
Extremely steep	75 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (SAR) of a saturation extract (15 percent or more of the total exchangeable bases) or both that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to $\text{Ca}^{++} + \text{Mg}^{++}$. The degrees of sodicity and their respective ratios are:

Very slight	5-12.1
Slight	13-30.1
Moderate	31-45.1

Strong	45-50%
very strong	more than 50%

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 3.0
Coarse sand	1.0 to 2.0
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.15
Very fine sand	0.15 to 0.075
Silt	0.075 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Species. A single distinct kind of plant or animal having certain distinguishing characteristics.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A surface cut formed by the erosion of hard or semiconsolidated bedrock and thinly mantled with stream deposits.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow, the deepest or central part of the bed formed by the main current, and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley flanking and more or less parallel to the stream channel, originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are *platy* (laminated), *prismatic*

(vertical axes of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tilage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

Surface layer. The soil ordinarily moved in tillage or its

to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer" or the Ap horizon.

Surface soil. The A, E, AB, and EB horizons considered collectively; it includes all subdivisions of these.

Tailwater. The water directly downstream of a structure.


Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment or ridge constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). A step-like surface, ordinarily flat or undulating, bordering a river, a lake, or the sea, representing a former flood plain.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*

- silt loam silt sandy clay loam clay loam silty clay loam sandy clay silty clay and clay* The sand loamy sand and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."
- Thin layer** (in tables) Otherwise suitable soil material too thin for the specified use
- Till plain** An extensive area of nearly level to undulating soils underlain by glacial till
- Tillth, soil** The physical condition of the soil as related to plowage seedbed preparation seeding emergence and root penetration
- Too slope** The outermost inclined surface at the base of a hill part of a foot slope
- Too arid** (in tables) The soil is dry most of the time and vegetation is difficult to establish
- Topsoil** The upper part of the soil which is the most favorable material for plant growth It is ordinarily rich in organic matter and is used to topdress roadbanks dawns and land affected by mining
- Toxicity** (in tables) Excessive amount of toxic substances such as sodium or sulfur that severely hinder establishment of vegetation or severely restrict plant growth
- Trace elements** Chemical elements for example zinc cobalt manganese copper and iron in soils in extremely small amounts They are essential to plant growth
- Trafficability** The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions
- Tread** The relatively flat terrace surface that was cut or built by stream or wave action
- Tuff** A compacted deposit that is 50 percent or more volcanic ash and dust
- Understory**  a height of less than 5 feet
- Unstable fill** (in tables) Risk of caving or sloughing on banks of fill material
- Upland (geology)** Land at a higher elevation in general than the alluvial plain or stream terrace land above the low lands along streams
- Valley** An elongated depression area primarily developed by stream action
- Valley fill** In glaciated regions material deposited in stream valleys by glacial meltwater in nonglaciated regions alluvium deposited by heavily loaded streams
- Variegation** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage
- Very deep soil** A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots
- Very shallow soil** A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots
- Water bars** Smooth shallow ditches or depressional areas that are excavated at an angle across a sloping road They are used to reduce the downward velocity of water and divert it off and away from the road surface Water bars can easily be driven over if constructed properly
- Waterspreading** Diverting runoff from natural channels by means of a system of dams dikes or ditches and spreading it over relatively flat surfaces
- Water supplying capacity** The total amount of water available in the soil for plant growth in a normal year from precipitation and from runoff from higher areas Runoff and water lost to deep percolation are not included
- Weathering** All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents These changes result in disintegration and decomposition of the material
- Well graded** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter Such soil normally can be easily increased in density and bearing properties by compaction Contrasts with poorly graded soil
- Wilting point (or permanent wilting point)** The moisture content of soil on an oven-dry basis at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid dark chamber
- Windthrow** The uprooting and tipping over of trees by the wind

TABLES

TABLE 1 - TEMPERATURE AND PRECIPITATION

Recorded in the period 1934-71 at Sheldon, Nevada

Month	Temperature (Degrees F)						Precipitation (inches)			
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have -		Average number of growing days*	Average	3 years in 10 will have -		Average number of days with 1.0 inch or more
				Maximum temperature higher	Minimum temperature lower			less than	more than	
January	34.1	17.1	25.6	53	-13	3	1.43	0.70	2.06	4
February	34.2	18.8	27.9	53	5	3	1.14	0.54	1.66	4
March	40.7	20.5	30.6	61	3	16	3.00	0.50	1.54	4
April	50.6	29.7	38.1	71	8	77	0.93	0.44	1.19	1
May	59.8	31.9	44.8	78	11	217	1.34	0.59	1.04	4
June	67.3	37.2	52.5	88	21	190	1.32	0.43	0.11	4
July	78.4	41.7	61.3	97	30	441	0.81	0.11	0.46	0
August	74.1	43.0	60.5	91	37	417	0.47	0.03	0.31	1
September	70.3	37.5	53.0	84	24	324	0.47	0.39	0.78	1
October	57.5	31.2	44.4	73	9	199	0.39	0.13	1.34	3
November	44.3	24.1	34.2	67	1	39	1.17	0.55	1.51	1
December	37.2	19.9	26.5	54	7	6	1.30	0.47	1.92	4
Year										
Average	54.6	29.2	41.9	---	---	---	---	---	---	---
Extremes	100 ↑	-20	---	99	25	---	---	---	---	---
Total						2,402	21.80	9.18	14.09	4

*A growing degree is a unit of heat energy. It is calculated by adding the maximum and minimum daily temperatures and dividing the sum by two. For example, if the maximum temperature is 70 degrees F and the minimum is 30 degrees F, the sum is 100, and dividing by two gives 50 growing degree units for that day.

TABLE 1. TEMPERATURE AND PRECIPITATION

Recorded in the period 1960-69 at Vya, Nevada

Month	Average temperature, degrees F			Precipitation, inches			Average number of days with		
	Average daily	Average daily	Average daily	Maximum temperature	Minimum temperature	Average growing degree	less than	more than	average number of days with
	1960-69	1960-69	1960-69	°F	°F	°F			
January	39.2	16.3	24.7	57	15	6	1.53	0.07	3.32
February	42.0	18.7	30.4	58	8	7	1.38	0.62	1.78
March	44.8	21.4	33.1	64	0	21	1.38	2.70	1.97
April	52.9	24.3	38.6	73	10	61	1.33	0.41	2.31
May	63.5	33.0	48.6	88	16	144	1.33	0.64	3.05
June	73.1	41.9	57.5	91	30	405	1.19	0.38	2.00
July	81.8	47.5	64.8	94	33	740	0.36	0.14	0.68
August	82.4	45.3	63.0	91	30	454	0.68	0.10	1.48
September	74.2	37.0	55.6	89	31	411	0.64	0.15	0.80
October	61.6	28.3	45.0	82	10	201	1.33	0.31	1.94
November	47.7	21.0	34.3	70	0	31	1.78	0.92	3.71
December	39.7	17.0	28.4	57	-11	6	1.54	0.70	2.39
Yearly									
Average	58.7	29.5	44.1	84	18	1,444	1.33	0.37	1.91
Maximum				94	33				
Minimum				15	-11				
Total						1,444	1.33	10.37	14.91

*A growing degree day is a unit of the heat energy required for plant growth. It is calculated by adding the maximum and minimum daily temperatures during the day, subtracting the base temperature (usually 50 degrees F), and dividing the result by 2. The base temperature is the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

TABLE 2. FROST DATES IN 1990 AND FALL

at Vye Nevada

	1990	1991	1992	1993
Last freezing temperature in spring				
1st	May 19	June 9	July 22	
2nd	May 20	June 10	July 23	
3rd	May 21	June 11	July 24	
4th	May 22	June 12	July 25	
5th	May 23	June 13	July 26	
6th	May 24	June 14	July 27	
7th	May 25	June 15	July 28	
8th	May 26	June 16	July 29	
9th	May 27	June 17	July 30	
10th	May 28	June 18	July 31	
11th	May 29	June 19	August 1	
12th	May 30	June 20	August 2	
13th	May 31	June 21	August 3	
14th	June 1	June 22	August 4	
15th	June 2	June 23	August 5	
16th	June 3	June 24	August 6	
17th	June 4	June 25	August 7	
18th	June 5	June 26	August 8	
19th	June 6	June 27	August 9	
20th	June 7	June 28	August 10	
21st	June 8	June 29	August 11	
22nd	June 9	June 30	August 12	
23rd	June 10	July 1	August 13	
24th	June 11	July 2	August 14	
25th	June 12	July 3	August 15	
26th	June 13	July 4	August 16	
27th	June 14	July 5	August 17	
28th	June 15	July 6	August 18	
29th	June 16	July 7	August 19	
30th	June 17	July 8	August 20	
31st	June 18	July 9	August 21	
32nd	June 19	July 10	August 22	
33rd	June 20	July 11	August 23	
34th	June 21	July 12	August 24	
35th	June 22	July 13	August 25	
36th	June 23	July 14	August 26	
37th	June 24	July 15	August 27	
38th	June 25	July 16	August 28	
39th	June 26	July 17	August 29	
40th	June 27	July 18	August 30	
41st	June 28	July 19	September 1	
42nd	June 29	July 20	September 2	
43rd	June 30	July 21	September 3	
44th	July 1	July 22	September 4	
45th	July 2	July 23	September 5	
46th	July 3	July 24	September 6	
47th	July 4	July 25	September 7	
48th	July 5	July 26	September 8	
49th	July 6	July 27	September 9	
50th	July 7	July 28	September 10	
51st	July 8	July 29	September 11	
52nd	July 9	July 30	September 12	
53rd	July 10	July 31	September 13	
54th	July 11	August 1	September 14	
55th	July 12	August 2	September 15	
56th	July 13	August 3	September 16	
57th	July 14	August 4	September 17	
58th	July 15	August 5	September 18	
59th	July 16	August 6	September 19	
60th	July 17	August 7	September 20	
61st	July 18	August 8	September 21	
62nd	July 19	August 9	September 22	
63rd	July 20	August 10	September 23	
64th	July 21	August 11	September 24	
65th	July 22	August 12	September 25	
66th	July 23	August 13	September 26	
67th	July 24	August 14	September 27	
68th	July 25	August 15	September 28	
69th	July 26	August 16	September 29	
70th	July 27	August 17	September 30	
71st	July 28	August 18	October 1	
72nd	July 29	August 19	October 2	
73rd	July 30	August 20	October 3	
74th	July 31	August 21	October 4	
75th	August 1	August 22	October 5	
76th	August 2	August 23	October 6	
77th	August 3	August 24	October 7	
78th	August 4	August 25	October 8	
79th	August 5	August 26	October 9	
80th	August 6	August 27	October 10	
81st	August 7	August 28	October 11	
82nd	August 8	August 29	October 12	
83rd	August 9	August 30	October 13	
84th	August 10	September 1	October 14	
85th	August 11	September 2	October 15	
86th	August 12	September 3	October 16	
87th	August 13	September 4	October 17	
88th	August 14	September 5	October 18	
89th	August 15	September 6	October 19	
90th	August 16	September 7	October 20	
91st	August 17	September 8	October 21	
92nd	August 18	September 9	October 22	
93rd	August 19	September 10	October 23	
94th	August 20	September 11	October 24	
95th	August 21	September 12	October 25	
96th	August 22	September 13	October 26	
97th	August 23	September 14	October 27	
98th	August 24	September 15	October 28	
99th	August 25	September 16	October 29	
100th	August 26	September 17	October 30	

TABLE 3. FROST DATES IN 1990 AND FALL

at Vye Nevada

	1990	1991	1992	1993
Last freezing temperature in spring				
1st	May 19	June 9	July 22	
2nd	May 20	June 10	July 23	
3rd	May 21	June 11	July 24	
4th	May 22	June 12	July 25	
5th	May 23	June 13	July 26	
6th	May 24	June 14	July 27	
7th	May 25	June 15	July 28	
8th	May 26	June 16	July 29	
9th	May 27	June 17	July 30	
10th	May 28	June 18	July 31	
11th	May 29	June 19	August 1	
12th	May 30	June 20	August 2	
13th	May 31	June 21	August 3	
14th	June 1	June 22	August 4	
15th	June 2	June 23	August 5	
16th	June 3	June 24	August 6	
17th	June 4	June 25	August 7	
18th	June 5	June 26	August 8	
19th	June 6	June 27	August 9	
20th	June 7	June 28	August 10	
21st	June 8	June 29	August 11	
22nd	June 9	June 30	August 12	
23rd	June 10	July 1	August 13	
24th	June 11	July 2	August 14	
25th	June 12	July 3	August 15	
26th	June 13	July 4	August 16	
27th	June 14	July 5	August 17	
28th	June 15	July 6	August 18	
29th	June 16	July 7	August 19	
30th	June 17	July 8	August 20	
31st	June 18	July 9	August 21	
32nd	June 19	July 10	August 22	
33rd	June 20	July 11	August 23	
34th	June 21	July 12	August 24	
35th	June 22	July 13	August 25	
36th	June 23	July 14	August 26	
37th	June 24	July 15	August 27	
38th	June 25	July 16	August 28	
39th	June 26	July 17	August 29	
40th	June 27	July 18	August 30	
41st	June 28	July 19	September 1	
42nd	June 29	July 20	September 2	
43rd	June 30	July 21	September 3	
44th	July 1	July 22	September 4	
45th	July 2	July 23	September 5	
46th	July 3	July 24	September 6	
47th	July 4	July 25	September 7	
48th	July 5	July 26	September 8	
49th	July 6	July 27	September 9	
50th	July 7	July 28	September 10	
51st	July 8	July 29	September 11	
52nd	July 9	July 30	September 12	
53rd	July 10	July 31	September 13	
54th	July 11	August 1	September 14	
55th	July 12	August 2	September 15	
56th	July 13	August 3	September 16	
57th	July 14	August 4	September 17	
58th	July 15	August 5	September 18	
59th	July 16	August 6	September 19	
60th	July 17	August 7	September 20	
61st	July 18	August 8	September 21	
62nd	July 19	August 9	September 22	
63rd	July 20	August 10	September 23	
64th	July 21	August 11	September 24	
65th	July 22	August 12	September 25	
66th	July 23	August 13	September 26	
67th	July 24	August 14	September 27	
68th	July 25	August 15	September 28	
69th	July 26	August 16	September 29	
70th	July 27	August 17	September 30	
71st	July 28	August 18	October 1	
72nd	July 29	August 19	October 2	
73rd	July 30	August 20	October 3	
74th	July 31	August 21	October 4	
75th	August 1	August 22	October 5	
76th	August 2	August 23	October 6	
77th	August 3	August 24	October 7	
78th	August 4	August 25	October 8	
79th	August 5	August 26	October 9	
80th	August 6	August 27	October 10	
81st	August 7	August 28	October 11	
82nd	August 8	August 29	October 12	
83rd	August 9	August 30	October 13	
84th	August 10	September 1	October 14	
85th	August 11	September 2	October 15	
86th	August 12	September 3	October 16	
87th	August 13	September 4	October 17	
88th	August 14	September 5	October 18	
89th	August 15	September 6	October 19	
90th	August 16	September 7	October 20	
91st	August 17	September 8	October 21	
92nd	August 18	September 9	October 22	
93rd	August 19	September 10	October 23	
94th	August 20	September 11	October 24	
95th	August 21	September 12	October 25	
96th	August 22	September 13	October 26	
97th	August 23	September 14	October 27	
98th	August 24	September 15	October 28	
99th	August 25	September 16	October 29	
100th	August 26	September 17	October 30	

TABLE 2. GROUND TEMPERATURE

Recorded in the period 1914-72 at Shoshone, Nevada

Probability	Higher than 14 degrees F	Higher than 72 degrees F	Higher than 82 degrees F
	Days	Days	Days
9 years in 10	78	47	24
8 years in 10	84	57	33
7 years in 10	93	71	44
6 years in 10	100	83	49
5 years in 10	110	102	73

Probability	Higher than 24 degrees F	Higher than 28 degrees F	Higher than 32 degrees F
	Days	Days	Days
9 years in 10	95	76	54
8 years in 10	104	87	62
7 years in 10	121	103	76
6 years in 10	137	116	91
5 years in 10	146	127	98

TABLE 4. A FILL AND FILLER SOILS LIST FOR THE CITY

Map symbol	Soil name	Acres	Percent
1010	Marylist Boulder Lake association	4 910	0.7
1011	Marylist silt loam 0 to 1 percent slopes	440	0.6
1012	Marylist Indian Creek ass.	10	0.1
1	Fowler very gravelly loam 3 to 15 percent slopes	4.0	0.5
2	Bearbutte Welch ass.	40	0.5
3	Mesa fine sand 4 to 15 percent slopes	1	0.1
4	Zorroville fine sand 4 to 15 percent slopes	1	0.1
5	Ninemile Madeline Crocker ass.	10	0.3
6	Tipton Ninemile association	11	0.4
7	Langston gravelly sandy loam, 3 to 15 percent slopes	1	0.1
8	Langston Old Camp Paypoint association	1	0.1
9	Old Camp association	440	0.5
10	Old Camp Corral association	0	0.0
11	Old Camp very stony loam, 3 to 15 percent slopes	1	0.2
12	Old Camp Rayway Rubble Land association	1	0.1
13	Oranava very gravelly loam, 3 to 15 percent slopes	1	0.1
14	Surprise gravelly loamy sand 3 to 15 percent slopes	1	0.1
15	Bucklake Rock Outcrop Corral association	1	0.1
16	Bucklake Fiddler association	1	0.1
17	Bucklake Rubble Land association	1	0.1
18	Frederick very fine sand 3 to 15 percent slopes	1	0.1
19	Indian Creek silt loam 3 to 15 percent slopes	1	0.1
20	Lefton Hansen complex, 3 to 15 percent slopes	1	0.1
21	McConnell very stony sandy loam, 3 to 15 percent slopes	1	0.1
22	McConnell gravelly fine sandy loam, 3 to 15 percent slopes	4 40	0.6
23	Howatt Old Camp association	10	0.1
24	Vaughy very fine sandy loam 0 to 3 percent slopes	50	0.7
25	Vaughy Langston Paypoint	40	0.5
26	Wendens silt loam, rarely flooded	60	0.8
27	Wendens silt loam, rarely flooded	4 40	0.6
28	Wendens silt loam, rarely flooded	2 40	0.3
29	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
30	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
31	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
32	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
33	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
34	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
35	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
36	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
37	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
38	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
39	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
40	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
41	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
42	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
43	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
44	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
45	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
46	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
47	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
48	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
49	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
50	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
51	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
52	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
53	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
54	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
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56	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
57	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
58	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
59	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
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61	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
62	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
63	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
64	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
65	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
66	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
67	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
68	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
69	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
70	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
71	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
72	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
73	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
74	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
75	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
76	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
77	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
78	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
79	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
80	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
81	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
82	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
83	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
84	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8
85	Devada Deeded complex, 3 to 15 percent slopes	1 60	0.8

See footnote at end of table

TABLE 4. AREAS AND PERCENTAGE OF THE SOILS (Continued)

Map symbol	Area	Percent
111	111	111
112	112	112
113	113	113
114	114	114
115	115	115
116	116	116
117	117	117
118	118	118
119	119	119
120	120	120
121	121	121
122	122	122
123	123	123
124	124	124
125	125	125
126	126	126
127	127	127
128	128	128
129	129	129
130	130	130
131	131	131
132	132	132
133	133	133
134	134	134
135	135	135
136	136	136
137	137	137
138	138	138
139	139	139
140	140	140
141	141	141
142	142	142
143	143	143
144	144	144
145	145	145
146	146	146
147	147	147
148	148	148
149	149	149
150	150	150
151	151	151
152	152	152
153	153	153
154	154	154
155	155	155
156	156	156
157	157	157
158	158	158
159	159	159
160	160	160
161	161	161

See footnote at end of table

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS

(See text for a description of the limitations and hazards listed in this table)

Soil name and map symbol	Cropland limitations or hazards
1010: Macyflot-----	Short frost-free season Water table
Boulder Lake-----	Ponding Poor tilth Potential for ground-water pollution Short frost-free season Water table
1011: Macyflot-----	Short frost-free season Water table
1012: Macyflot-----	Short frost-free season Water table
Indian Creek-	Limited available water capacity Restricted permeability Root restrictive layer Short frost-free season Surface rock fragments
1015 Powlow	Erosion by water Limited available water capacity Root restrictive layer Slope Surface rock fragments
1020 Bearbette -	Erosion by water Limited available water capacity Short frost-free season Slope
Welch	Potential for ground-water pollution Short frost-free season Water table
1025 Mesman -----	Limited available water capacity Salt content Sodium content Surface crusting

TABLE 5 CROPLAND LIMITATIONS AND HAZARDS -Continued

Soil name and map symbol	Cropland limitations or hazards
1030 Zorravista	Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface crusting
1035: Ninemile	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Madeline	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface stones
Crocan	Depth to rock Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface stones
1036: Tinpan-----	Depth to rock Limited available water capacity Potential for ground-water pollution Short frost-free season Surface rock fragments
Ninemile-----	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
1040 Langston	Limited available water capacity Potential for ground-water pollution Soil blowing

TABLE 5 CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1044 Langston	Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing
Old Camp--	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface crusting Surface rock fragments
Paypoint	Limited available water capacity Potential for ground-water pollution Soil blowing
1045 Paypoint-	Limited available water capacity Potential for ground-water pollution Soil blowing
Langston	Limited available water capacity Potential for ground-water pollution Soil blowing
1046 Skullwax	Flooding Lime content Potential for ground-water pollution Salt content Sodium content Surface crusting Water table

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1055 Levada	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Hapgood-----	Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments
Hart Camp-----	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
1060: Bombadil	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface stones
Chime	Depth to rock Erosion by water Limited available water capacity Slope
1061: Old Camp-----	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface crusting

TABLE 5. CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1062: Old Camp-----	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface crusting Surface rock fragments
Corral-----	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
1063: Old Camp-----	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface crusting Surface stones
1070 Orleneva	Depth to rock Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments
1075 Surprise - - -	Slope

TABLE 5. CROPLAND LIMITATIONS AND HAZARDS Continued

Soil name and map symbol	Cropland limitations or hazards
1080 Bucklake	Areas of rock outcrop Depth to rock Erosion by water Limited available water capacity Potential for ground water pollution Short frost-free season Slope Surface stones
Rock outcrop-----	Nonsoil material
Corral-----	Areas of rock outcrop Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
1081 Jaylee	Depth to rock Limited available water capacity Potential for ground-water pollution Soil blowing Surface crusting Surface rock fragments
Verdico-----	Depth to rock Erosion by water Limited available water capacity Slope Surface stones
1095 Corral-----	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
Mahala	Depth to rock Limited available water capacity Short frost-free season Surface rock fragments

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1105: Freznik-----	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface stones
1110: Lindner rock	Erosion by water Limited available water capacity Restricted permeability Root restrictive layer Slope Surface rock fragments
1115: Baffaran-	Erosion by water Limited available water capacity Restricted permeability Root restrictive layer Slope Soil blowing Surface stones
1116: Lift 16	Lime content Limited available water capacity Potential for ground-water pollution Root restrictive layer Salt content Sodium content Soil blowing Surface crusting Water table
1117: Mesman	Limited available water capacity Salt content Sodium content Surface crusting
1120: McConnel-	Limited available water capacity Potential for ground-water pollution Salt content Soil blowing Surface stones
1121: McConnel	Limited available water capacity Potential for ground-water pollution Salt content Soil blowing Surface crusting

TABLE 2. CROPLAND LIMITATIONS AND HAZARDS. Continued

Soil name and map symbol	Cropland limitations or hazards
1125 Harvert	Depth to rock Limited available water capacity Root restrictive layer
Jaybee-----	Depth to rock Limited available water capacity Potential for ground-water pollution Soil blowing Surface crusting Surface rock fragments
Tunnicliffe---	Depth to rock Limited available water capacity Poor tilth Potential for ground-water pollution Soil blowing Surface rock fragments
113 Saughe	Areas of rock outcrop Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface crusting Surface rock fragments
Rock outcrop--	Nonsoil material
114 Saughe	Areas of rock outcrop Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface crusting Surface rock fragments
Rock outcrop--	Nonsoil material

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS Continued

Soil name and map symbol	Cropland limitations or hazards
1135+ McWatt-	- Limited available water capacity Potential for ground-water pollution Slope Surface stones
Old Camp-	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Surface crusting Surface stones
1140 Valmy----	Flooding Salt content Sodium content Surface crusting
1141: Valmy---	Erosion by water Potential for ground-water pollution Salt content Sodium content Surface crusting
Langston-	Limited available water capacity Potential for ground-water pollution Soil blowing
Paypoint-----	Limited available water capacity Potential for ground-water pollution Soil blowing
1145 Wendane- - - -	Lime content Potential for ground-water pollution Salt content Sodium content Surface crusting Water table

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS Continued

Soil name and map symbol	Cropland limitations or hazards
1150 Saraph	Depth to rock Erosion by water Limited available water capacity Slope Soil blowing Surface rock fragments
Hangrock	Limited available water capacity Root restrictive layer Slope Surface rock fragments
Tuff---	Depth to rock Erosion by water Limited available water capacity Slope Soil blowing Surface rock fragments
1151 Saraph--	Depth to rock Limited available water capacity Soil blowing
Tuff	Depth to rock Erosion by water Limited available water capacity Slope Soil blowing
Yellowhills	None
1155 Madeline	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface stones
Ninemile	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments

TABLE 5. CROPLAND LIMITATIONS AND HAZARDS Continued

Soil name and map symbol	Cropland limitations or hazards
1160 W 10	Areas of rock outcrop Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost free season Slope Soil blowing Surface stones
Bucklake	Areas of rock outcrop Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost free season Slope Surface stones
Rock outcrop	Nonsoil material
1162 Nevada	Depth to rock Limited available water capacity Potential for ground-water pollution Slope Surface rock fragments
Nitpac	Depth to rock Limited available water capacity Root restrictive layer Surface rock fragments
1163 Nevada	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface rock fragments
Deserted	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing

TABLE CROPLAND LIMITATIONS AND HAZARDS Continued

Soil name and map symbol	Cropland limitations or hazards
1164 Devada	Depth to rock Erosion by water Limited available water capacity Potential for ground water pollution Slope Soil blowing Surface rock fragments
Ashcamp	Depth to rock Erosion by water Limited available water capacity Slope Soil blowing
1165: Devada	Depth to rock Erosion by water Limited available water capacity Potential for ground water pollution Slope Soil blowing Surface rock fragments
Nitpac-----	Depth to rock Limited available water capacity Root restrictive layer Slope Surface rock fragments
Bidrim-	Depth to rock Limited available water capacity Potential for ground-water pollution Slope Surface stones
1166: Devada	- Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Bieber	Erosion by water Limited available water capacity Root restrictive layer Short frost-free season Slope Soil blowing Surface rock fragments

TABLE 5. CROPLAND LIMITATIONS AND HAZARDS Continued

Soil name and map symbol	Cropland limitations or hazards
116 Devada	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface stones
Raywat-----	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface stones
1168 Devada-----	Depth to rock Limited available water capacity Potential for ground-water pollution Slope Surface rock fragments
1170 Devada	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface stones
Bucklake	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments

TABLE 5 - CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1171 Devada	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface stones
Indian Creek-	Erosion by water Limited available water capacity Restricted permeability Root restrictive layer Slope Surface rock fragments
1172 Devada	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Madeline	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Ninemile	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
11751 Ferver	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface rock fragments
Nitpac-----	Depth to rock Limited available water capacity Root restrictive layer Surface rock fragments
Uhaldi-----	Depth to rock Erosion by water Limited available water capacity Slope Surface stones
11751 Ferver	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface rock fragments
Uhaldi-----	Depth to rock Erosion by water Limited available water capacity Surface stones
11751 Ferver	Limited available water capacity Root restrictive layer Surface rock fragments
Tunnison-----	Depth to rock Limited available water capacity Poor tilth Potential for ground-water pollution Soil blowing Surface rock fragments

TABLE 5 CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1180: Ninemile----	Depth to rock Erosion by water Limited available water capacity Potential for ground water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Karlo	Depth to rock Limited available water capacity Poor tilth Potential for ground water pollution Short frost free season Surface rock fragments
1181: Ninemile---	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Madeline---	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Tinpan-	Depth to rock Limited available water capacity Potential for ground-water pollution Short frost-free season Surface rock fragments

TABLE 5. CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1182 Ninemile	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Westbutte	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface stones
1184 Ninemile	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Tinpan-----	Depth to rock Limited available water capacity Potential for ground-water pollution Short frost-free season Surface rock fragments
1185: Ninemile-----	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Hart Camp-	Depth to rock Erosion by water Limited available water capacity Short frost free season Slope Surface stones

TABLE 5.- CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1.86 Ninemile	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Tinpan-----	Depth to rock Limited available water capacity Potential for ground-water pollution Short frost free season Surface rock fragments
Crocan-----	Depth to rock Limited available water capacity Potential for ground-water pollution Short frost free season Slope Surface stones
1187: Ninemile-----	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface stones
Tinpan---	Depth to rock Limited available water capacity Potential for ground water pollution Short frost-free season Surface rock fragments
Hart Camp-	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones

TABLE 5. CROPLAND LIMITATIONS AND HAZARDS--Continued

Site name and trap symbol	Cropland limitations or hazards
1188 Nine Mile	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost free season Slope Soil blowing Surface rock fragments
Lowville	Erosion by water Potential for ground water pollution Short frost free season Slope Surface stones
Hart Camp	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
1189: Nine Mile	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Badgercamp	Depth to rock Erosion by water Limited available water capacity Short frost free season Slope Surface stones
Crocan--	Depth to rock Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface stones

TABLE 5.- CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1190 Ferrer	Erosion by water Limited available water capacity Root restrictive layer Slope Surface rock fragments
Nitpac-----	Depth to rock Limited available water capacity Root restrictive layer Slope Surface rock fragments
1195 Bitner.....	Depth to rock Erosion by water Limited available water capacity Slope Soil blowing
Ashcamp-	Depth to rock Erosion by water Limited available water capacity Slope Soil blowing
1205: Davey	Erosion by water Potential for ground-water pollution Slope Soil blowing
1206: Davey	Erosion by water Potential for ground-water pollution Short frost-free season Slope Soil blowing
Corral----	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Soil blowing

TABLE 5 CROPLAND LIMITATIONS AND HAZARDS Continued

Soil name and map symbol	Cropland limitations or hazards
1210 Mazuma	Lime content Salt content Sodium content Surface crusting
B.ghat-	Erosion by water Excessive permeability below restriction Lime content Limited available water capacity Potential for ground-water pollution Slope Sodium content Soil blowing Surface crusting Surface stones
1215: Raglan-	Salt content Sodium content Surface crusting
Isoids-----	Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface crusting
1220 Schamp	Erosion by water Short frost-free season Slope Surface stones
1224 Schamp	Erosion by water Short frost-free season Slope
1230 Raglan	Salt content Sodium content Surface crusting
Mazuma	Lime content Salt content Sodium content Surface crusting

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
125 hine	Depth to rock Erosion by water Limited available water capacity Slope
143 Trey	Depth to rock Limited available water capacity Short frost-free season Surface rock fragments
Millerlux	Depth to rock Limited available water capacity Potential for ground water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Hart Camp-	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
1245 Seraph-	Depth to rock Erosion by water Limited available water capacity Short frost-free season Surface rock fragments
Uhaldi-	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
Freintera	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing

TABLE 5.- CROPLAND LIMITATIONS AND HAZARDS- Continued

Soil name and map symbol	Cropland limitations or hazards
114 Ashdon	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface rock fragments
Ashdon	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface rock fragments
Bearbutte	Erosion by water Limited available water capacity Short frost-free season Slope
114 Ashdon	-- Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface rock fragments
Ashdon	----- Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface rock fragments
Ashdon	Depth to rock Erosion by water Short frost-free season Slope Surface rock fragments

TABLE 5. CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1254 Newlands	Erosion by water Potential for ground water pollution Short frost-free season Slope Surface stones
Nielsen	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost free season Slope Soil blowing Surface rock fragments
1256 Newlands	Erosion by water Potential for ground water pollution Short frost-free season Slope Surface stones
Menbo	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments
1257 Newlands-----	Erosion by water Potential for ground-water pollution Short frost-free season Slope Surface stones
Hapgood	Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1258 Newlands	Erosion by water Potential for ground water pollution Short frost free season Slope Surface stones
Badgercamp-----	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
Hackwood-----	Erosion by water Short frost free season Slope
1270 Hartig-----	Erosion by water Limited available water capacity Potential for ground water pollution Short frost-free season Slope
1272 Hartig-----	Areas of rock outcrop Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments
Rock outcrop-----	Nonsoil material
1275 Hart Camp-----	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones

TABLE 2.- CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1277 Hart Camp -----	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
N. Homestead -----	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
1278, Boltz	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Soil blowing
Hart Camp--	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
1279 Hart Camp-	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
Nutzan-	Depth to rock Erosion by water Short frost-free season Slope Soil blowing
Westhutte-	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1285: Zymante	Erosion by water Slope Surface rock fragments
Indian Creek	Erosion by water Limited available water capacity Restricted permeability Root restrictive layer Slope Surface rock fragments
1286: Zymante	Erosion by water Short frost-free season Slope Surface rock fragments
Notant-	Depth to rock Erosion by water Limited available water capacity Surface rock fragments
Hart Camp--	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
1290: Hapgood----	Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments
Badgercamp-	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
Hackwood-	Short frost-free season Slope

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1195 Devay	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments
Blizzard--	Depth to rock Erosion by water Limited available water capacity Poor tilth Potential for ground-water pollution Short frost free season Slope Surface rock fragments
1296 Blizzard--	Depth to rock Erosion by water Limited available water capacity Poor tilth Potential for ground-water pollution Short frost-free season Slope Surface rock fragments
1305: Updike-----	Lime content Salt content Sodium content Soil blowing Surface crusting Water table
Mazuma-----	Lime content Salt content Sodium content Surface crusting
1306: Updike--	Lime content Salt content Sodium content Soil blowing Surface crusting Water table
Longdis -	Sodium content Surface crusting

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1310 Longdis	Sodium content Surface crusting
Updake	Flooding Lime content Salt content Sodium content Soil blowing Surface crusting Water table
1311 Longdis	Flooding Short frost-free season Sodium content Soil blowing Surface crusting
Macyflat-	-- Short frost-free season Water table
Aerie Espiaquents	Flooding Potential for ground water pollution Short frost-free season Surface crusting Water table
1312 Longdis-	Sodium content Surface crusting
Dugway---	Root restrictive layer Sodium content Soil blowing Surface crusting Water table
1313: Longdis	Flooding Sodium content Soil blowing Surface crusting
1320: Dugway-	Root restrictive layer Sodium content Soil blowing Surface crusting Water table

TABLE 3. -CROPLAND LIMITATIONS AND HAZARDS- Continued

Soil name and map symbol	Cropland limitations or hazards
11.7 Rejwat	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface stones
Westbutte	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost free season Slope Surface stones
Hapgood	Erosion by water Limited available water capacity Potential for ground water pollution Short frost-free season Slope Surface rock fragments
1328 Rejwat	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface stones
Fernpoint- - -	Erosion by water Excessive permeability below restriction Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1324 Reywat	Depth to rock Erosion by water Limited available water capacity Potential for ground water pollution Short frost-free season Slope Soil blowing Surface stones
Devada	Depth to rock Erosion by water Limited available water capacity Potential for ground water pollution Short frost-free season Slope Soil blowing Surface stones
1335 Westbutte-----	Areas of rock outcrop Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Surface stones
Rock outcrop	Nonsoil material
1336 Westbutte	Depth to rock Erosion by water Limited available water capacity Potential for ground water pollution Short frost-free season Slope Surface rock fragments
Ashtre-	Depth to rock Erosion by water Short frost-free season Slope
Tusare-	Depth to rock Erosion by water Short frost-free season Slope Surface stones

TABLE 5 CROPLAND LIMITATIONS AND HAZARDS (Continued)

Soil name and map symbol	Cropland limitations or hazards
1345 Layview	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Hapgood-----	Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments
1346: Layview-----	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
Westbutte-----	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments
Hapgood-----	Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Surface rock fragments

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1355 Badgercamp-----	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
Hackwood-	Erosion by water Short frost-free season Slope
Easte-----	Erosion by water Limited available water capacity Short frost-free season Slope Surface rock fragments
1358 Badgercamp	Depth to rock Erosion by water Limited available water capacity Short frost-free season Slope Surface stones
Hackwood-	Erosion by water Short frost-free season Slope
1360 Wetvit	Flooding Potential for ground-water pollution Short frost-free season Water table
1361: Wetvit-	Flooding Potential for ground-water pollution Water table
Wetvit-	Flooding Potential for ground-water pollution Water table

TABLE 5. CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
117E Otara	Depth to rock Erosion by water Limited available water capacity Short frost free season None Surface rock fragments
Madeline	Depth to rock Erosion by water Limited available water capacity Potential for ground water pollution Short frost-free season Slope Soil blowing Surface rock fragments
1380: Weimer-	Ponding Poor tilth Potential for ground-water pollution Short frost-free season Water table
Boulder Lake	Ponding Poor tilth Potential for ground-water pollution Short frost-free season Water table
1385 Fernpoint--	Erosion by water Excessive permeability below restriction Limited available water capacity Potential for ground-water pollution Slope Surface rock fragments
1395: Orr--	None
Fernpoint	Erosion by water Excessive permeability below restriction Limited available water capacity Potential for ground-water pollution Slope Surface rock fragments

TABLE 5.- CROPLAND LIMITATIONS AND HAZARDS Continued

Soil name and map symbol	Cropland limitations or hazards
1400 Bombadil	Depth to rock Erosion by water Limited available water capacity Potential for ground water pollution Slope Soil blowing Surface stones
Conjay-	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Slope Soil blowing Surface stones
1410: Fulstone	Erosion by water Limited available water capacity Root restrictive layer Slope Soil blowing Surface rock fragments
Saraph-	Depth to rock Erosion by water Limited available water capacity Slope Soil blowing Surface rock fragments
Tuffo-	Depth to rock Erosion by water Limited available water capacity Slope Soil blowing Surface rock fragments

TABLE 5 CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1412 Flintstone	Erosion by water Limited available water capacity Root restrictive layer Slope Soil blowing Surface rock fragments
Nellispring	Erosion by water Root restrictive layer Slope Soil blowing Surface rock fragments
Buffarah	Erosion by water Limited available water capacity Restricted permeability Root restrictive layer Slope Soil blowing
1420: Hangrock-----	Limited available water capacity Root restrictive layer Slope Surface rock fragments
14 0 Grassycan	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Root restrictive layer Slope Soil blowing Surface stones
Grassycan--	Depth to rock Limited available water capacity Potential for ground-water pollution Root restrictive layer Surface stones

TABLE 5.--CROPLAND LIMITATIONS AND HAZARDS--Continued

Soil name and map symbol	Cropland limitations or hazards
1431: Esmod--	Erosion by water Limited available water capacity Root restrictive layer Slope Soil blowing Surface rock fragments
Powlow-----	Erosion by water Limited available water capacity Root restrictive layer Slope Surface rock fragments
1440 Emajert	Water table
Wetvut	Potential for ground-water pollution Water table
1440 Woozwood	Water table
1470 H. temala	Depth to rock Erosion by water Limited available water capacity Potential for ground-water pollution Short frost-free season Slope Soil blowing Surface rock fragments
9901 Playas	Nonsoil material

TABLE 6.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS

(Yields are those that can be expected under a high level of irrigated management by component name. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Alfalfa hay
		Tons
114 McCabe	4S	5.2
1140 Vashy	2W	5.0
1145 Kaglan	2C	
Isolde-----	4S	4.0
1195: Orr-----	3E	4.5
Fernpoint-		

Table 7. SUITABILITY FOR RANGELAND SEEDING Continued

Case 2	Location rating	Remarks
Ma. 1st	1	Rooting depth
Ma. 2nd	2	Too arid, too clayey
Ma. 3rd	3	Rooting depth
Ma. 4th	4	Rooting depth
Ma. 5th	5	Rooting depth
Ma. 6th	6	Droughty, rooting depth
Ma. 7th	7	Rooting depth
Ma. 8th	8	Rooting depth
Ma. 9th	9	Rooting depth
Ma. 10th	10	Rooting depth
Ma. 11th	11	Rooting depth
Ma. 12th	12	Rooting depth
Ma. 13th	13	Rooting depth
Ma. 14th	14	Rooting depth
Ma. 15th	15	Rooting depth
Ma. 16th	16	Rooting depth
Ma. 17th	17	Rooting depth
Ma. 18th	18	Rooting depth
Ma. 19th	19	Rooting depth
Ma. 20th	20	Rooting depth
Ma. 21st	21	Rooting depth
Ma. 22nd	22	Rooting depth
Ma. 23rd	23	Rooting depth
Ma. 24th	24	Rooting depth
Ma. 25th	25	Rooting depth
Ma. 26th	26	Rooting depth
Ma. 27th	27	Rooting depth
Ma. 28th	28	Rooting depth
Ma. 29th	29	Rooting depth
Ma. 30th	30	Rooting depth
Ma. 31st	31	Rooting depth
Ma. 32nd	32	Rooting depth
Ma. 33rd	33	Rooting depth
Ma. 34th	34	Rooting depth
Ma. 35th	35	Rooting depth
Ma. 36th	36	Rooting depth
Ma. 37th	37	Rooting depth
Ma. 38th	38	Rooting depth
Ma. 39th	39	Rooting depth
Ma. 40th	40	Rooting depth
Ma. 41st	41	Rooting depth
Ma. 42nd	42	Rooting depth
Ma. 43rd	43	Rooting depth
Ma. 44th	44	Rooting depth
Ma. 45th	45	Rooting depth
Ma. 46th	46	Rooting depth
Ma. 47th	47	Rooting depth
Ma. 48th	48	Rooting depth
Ma. 49th	49	Rooting depth
Ma. 50th	50	Rooting depth
Ma. 51st	51	Rooting depth
Ma. 52nd	52	Rooting depth
Ma. 53rd	53	Rooting depth
Ma. 54th	54	Rooting depth
Ma. 55th	55	Rooting depth
Ma. 56th	56	Rooting depth
Ma. 57th	57	Rooting depth
Ma. 58th	58	Rooting depth
Ma. 59th	59	Rooting depth
Ma. 60th	60	Rooting depth
Ma. 61st	61	Rooting depth
Ma. 62nd	62	Rooting depth
Ma. 63rd	63	Rooting depth
Ma. 64th	64	Rooting depth
Ma. 65th	65	Rooting depth
Ma. 66th	66	Rooting depth
Ma. 67th	67	Rooting depth
Ma. 68th	68	Rooting depth
Ma. 69th	69	Rooting depth
Ma. 70th	70	Rooting depth
Ma. 71st	71	Rooting depth
Ma. 72nd	72	Rooting depth
Ma. 73rd	73	Rooting depth
Ma. 74th	74	Rooting depth
Ma. 75th	75	Rooting depth
Ma. 76th	76	Rooting depth
Ma. 77th	77	Rooting depth
Ma. 78th	78	Rooting depth
Ma. 79th	79	Rooting depth
Ma. 80th	80	Rooting depth
Ma. 81st	81	Rooting depth
Ma. 82nd	82	Rooting depth
Ma. 83rd	83	Rooting depth
Ma. 84th	84	Rooting depth
Ma. 85th	85	Rooting depth
Ma. 86th	86	Rooting depth
Ma. 87th	87	Rooting depth
Ma. 88th	88	Rooting depth
Ma. 89th	89	Rooting depth
Ma. 90th	90	Rooting depth
Ma. 91st	91	Rooting depth
Ma. 92nd	92	Rooting depth
Ma. 93rd	93	Rooting depth
Ma. 94th	94	Rooting depth
Ma. 95th	95	Rooting depth
Ma. 96th	96	Rooting depth
Ma. 97th	97	Rooting depth
Ma. 98th	98	Rooting depth
Ma. 99th	99	Rooting depth
Ma. 100th	100	Rooting depth

Table 7. SUITABILITY FOR RANGELAND SEEDING. Continued

Soil series map symbol	Limitation rating	Restrictive features
14 Barren	1	Too arid
15 Angus	2 suited	Rooting depth
16 A. soil	2	Too arid, droughty, small stones, rooting depth
17 Hagood	Poorly suited	Too arid, droughty, small stones, rooting depth
18 A. soil	Suited	Too arid, droughty, depth to rock
19 Hagood	Poorly suited	Droughty
20 A. soil	Suited	Too arid, droughty
21 A. soil	Poorly suited	Droughty, large stones
22 Old Camp	Poorly suited	Droughty, small stones, rooting depth
23 Corral	Poorly suited	Too arid
24 Old Camp	Poorly suited	Droughty, small stones, rooting depth
25 Old Camp	Poorly suited	Droughty, small stones, rooting depth
26 A. soil	Poorly suited	Droughty, large stones, rooting depth
27 Public Land	Poorly suited	Too arid, droughty, large stones
28 A. soil	Suited	Too arid, droughty
29 A. soil	Suited	Too arid, droughty

Table 7. SUITABILITY FOR RANGELAND SKIRMING Continued

Soil name and map symbol	Limiting factors	Restrictive features
1.050 C. k. s. s.	7.5	2.5
Rock Outcrop	4.5	
Entail- 4.5 4.5 4.5	Poorly suited	Droughty
1.051 Buckskin- 4.5 4.5 4.5	Poorly suited	Small stones
1.052 Buckskin- 4.5 4.5 4.5	4.5	4.5
1.053 Buckskin- 4.5 4.5 4.5	Poorly suited	Small stones
1.054 Buckskin- 4.5 4.5 4.5	Poorly suited	Too acid droughty large stones
1.055 Buckskin- 4.5 4.5 4.5	4.5	Droughty small stones rooting depth
1.056 Buckskin- 4.5 4.5 4.5	4.5	Rooting depth
1.057 Buckskin- 4.5 4.5 4.5	4.5	Droughty small stones
1.058 Buckskin- 4.5 4.5 4.5	4.5	Large stones rooting depth
1.059 Buckskin- 4.5 4.5 4.5	4.5	Rooting depth
1.060 Buckskin- 4.5 4.5 4.5	4.5	Too droughty rooting depth
1.061 Buckskin- 4.5 4.5 4.5	4.5	Droughty rooting depth
1.062 Buckskin- 4.5 4.5 4.5	4.5	Droughty excess salt, excess acid
1.063 Buckskin- 4.5 4.5 4.5	4.5	Too acid droughty rooting depth
1.064 Buckskin- 4.5 4.5 4.5	4.5	Small stones excess salt
1.065 Buckskin- 4.5 4.5 4.5	4.5	Too acid

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name and map symbol	limitation rating	Restrictive features
II Fogus 14	Poorly suited- ***	Droughty rooting depth
III H. h. h. h. h.	Poorly suited - - - -	Small stones
IV Fogus 14	Poorly suited - - - -	Droughty, rooting depth
V Fogus 14	Poorly suited- ***	Droughty, rooting depth
VI H. h. h. h. h.	Poorly suited -	Droughty small stones rooting depth
VII H. h. h. h. h.	Poorly suited- - - - -	Rooting depth
VIII H. h. h. h. h.	Poorly suited -	Droughty small stones rooting depth
IX H. h. h. h. h.	**** Poorly suited - - - -	Droughty small stones rooting depth
X H. h. h. h. h.	Poorly suited - -	Small stones rooting depth
XI H. h. h. h. h.	Poorly - - - -	Rooting depth
XII H. h. h. h. h.	Poorly suited	Droughty, small stones rooting depth
XIII H. h. h. h. h.	Poorly suited - - - -	Rooting depth
XIV H. h. h. h. h.	Poorly suited- - - - -	Rooting depth
XV H. h. h. h. h.	Poorly - - - -	Too acid
XVI H. h. h. h. h.	Poorly - - - -	Droughty small stones rooting depth
XVII H. h. h. h. h.	1 - - - -	Too arid droughty too clayey
XVIII H. h. h. h. h.	Poorly - - - -	Droughty small stones rooting depth
XIX H. h. h. h. h.	Poorly suited- - - - -	Rooting depth
XX H. h. h. h. h.	Poorly suited- - - - -	Rooting depth

Table 2 SUITABILITY FOR RANGELAND SEEDLING- Continued

Map symbol	Limitation rating	Restrictive features
5.		
H 1000 0	++++ Poorly suited	Droughty small stones rooting depth
Wash 1000 0	Poorly suited	Droughty
1000 0	Poorly suited	Droughty, small stones rooting depth
1000 0	Poorly suited	Droughty
1000 0	Poorly suited	Droughty small stones rooting depth
1000 0	Poorly suited	Rooting depth
1000 0	Poorly suited - -	Droughty small stones rooting depth
1000 0	-----	Too acid droughty depth to rock
1000 0	Poorly suited - - -	Droughty small stones rooting depth
1000 0	Poorly suited - -	Rooting depth
1000 0	Poorly suited - - -	Droughty, rooting depth
1000 0	Poorly suited - - -	Droughty rooting depth
1000 0	Poorly suited	Rooting depth
1000 0	Suited + + + + +	Too acid droughty, depth to rock
1000 0	-----	Droughty small stones, rooting depth
1000 0	-----	-----
1000 0	Suited - - - -	Too acid droughty, depth to rock
1000 0	Poorly suited	Droughty small stones rooting depth
1000 0	Poorly suited	-----
1000 0	Poorly suited	----- rooting depth

Table 7. SUITABILITY FOR RANGE AND SOIL USE Continued

Soil map symbol	Limitation rating	Restrictive Features
1		
2	Rooting depth
3	Small stones, rooting depth
4	Too arid, droughty
5
6	Too arid, droughty, too sandy
7	Too arid, droughty, too sandy
8	Poorly suited, droughty, rooting depth
9	Too arid, excess salt, excess sodium
10, droughty, rooting depth
11, excess salt, excess sodium
12	Too arid, too sandy
13
14	Rooting depth, erodes easily
15	Rooting depth
16	Too arid, excess salt, excess sodium
17	Too arid, excess salt, excess sodium
18	Too arid, droughty

Table 1. Soil Survey Data for Washoe County, Nevada

Soil name and map symbol	Limitation rating	Restrictive features
1.4 Tremor	1.4	Small stones, rooting depth
1.5 H. 1.5	1.5	Droughty, rooting depth
1.6 H. 1.6	1.6	Too acid, droughty, depth to rock
1.7 H. 1.7	1.7	1.7
1.8 H. 1.8	1.8	1.8
1.9 H. 1.9	1.9	1.9
1.10 H. 1.10	1.10	1.10
1.11 H. 1.11	1.11	1.11
1.12 H. 1.12	1.12	1.12
1.13 H. 1.13	1.13	1.13
1.14 H. 1.14	1.14	1.14
1.15 H. 1.15	1.15	1.15
1.16 H. 1.16	1.16	1.16
1.17 H. 1.17	1.17	1.17
1.18 H. 1.18	1.18	1.18
1.19 H. 1.19	1.19	1.19
1.20 H. 1.20	1.20	1.20
1.21 H. 1.21	1.21	1.21
1.22 H. 1.22	1.22	1.22
1.23 H. 1.23	1.23	1.23
1.24 H. 1.24	1.24	1.24
1.25 H. 1.25	1.25	1.25
1.26 H. 1.26	1.26	1.26
1.27 H. 1.27	1.27	1.27
1.28 H. 1.28	1.28	1.28
1.29 H. 1.29	1.29	1.29
1.30 H. 1.30	1.30	1.30
1.31 H. 1.31	1.31	1.31
1.32 H. 1.32	1.32	1.32
1.33 H. 1.33	1.33	1.33
1.34 H. 1.34	1.34	1.34
1.35 H. 1.35	1.35	1.35
1.36 H. 1.36	1.36	1.36
1.37 H. 1.37	1.37	1.37
1.38 H. 1.38	1.38	1.38
1.39 H. 1.39	1.39	1.39
1.40 H. 1.40	1.40	1.40
1.41 H. 1.41	1.41	1.41
1.42 H. 1.42	1.42	1.42
1.43 H. 1.43	1.43	1.43
1.44 H. 1.44	1.44	1.44
1.45 H. 1.45	1.45	1.45
1.46 H. 1.46	1.46	1.46
1.47 H. 1.47	1.47	1.47
1.48 H. 1.48	1.48	1.48
1.49 H. 1.49	1.49	1.49
1.50 H. 1.50	1.50	1.50
1.51 H. 1.51	1.51	1.51
1.52 H. 1.52	1.52	1.52
1.53 H. 1.53	1.53	1.53
1.54 H. 1.54	1.54	1.54
1.55 H. 1.55	1.55	1.55
1.56 H. 1.56	1.56	1.56
1.57 H. 1.57	1.57	1.57
1.58 H. 1.58	1.58	1.58
1.59 H. 1.59	1.59	1.59
1.60 H. 1.60	1.60	1.60
1.61 H. 1.61	1.61	1.61
1.62 H. 1.62	1.62	1.62
1.63 H. 1.63	1.63	1.63
1.64 H. 1.64	1.64	1.64
1.65 H. 1.65	1.65	1.65
1.66 H. 1.66	1.66	1.66
1.67 H. 1.67	1.67	1.67
1.68 H. 1.68	1.68	1.68
1.69 H. 1.69	1.69	1.69
1.70 H. 1.70	1.70	1.70
1.71 H. 1.71	1.71	1.71
1.72 H. 1.72	1.72	1.72
1.73 H. 1.73	1.73	1.73
1.74 H. 1.74	1.74	1.74
1.75 H. 1.75	1.75	1.75
1.76 H. 1.76	1.76	1.76
1.77 H. 1.77	1.77	1.77
1.78 H. 1.78	1.78	1.78
1.79 H. 1.79	1.79	1.79
1.80 H. 1.80	1.80	1.80
1.81 H. 1.81	1.81	1.81
1.82 H. 1.82	1.82	1.82
1.83 H. 1.83	1.83	1.83
1.84 H. 1.84	1.84	1.84
1.85 H. 1.85	1.85	1.85
1.86 H. 1.86	1.86	1.86
1.87 H. 1.87	1.87	1.87
1.88 H. 1.88	1.88	1.88
1.89 H. 1.89	1.89	1.89
1.90 H. 1.90	1.90	1.90
1.91 H. 1.91	1.91	1.91
1.92 H. 1.92	1.92	1.92
1.93 H. 1.93	1.93	1.93
1.94 H. 1.94	1.94	1.94
1.95 H. 1.95	1.95	1.95
1.96 H. 1.96	1.96	1.96
1.97 H. 1.97	1.97	1.97
1.98 H. 1.98	1.98	1.98
1.99 H. 1.99	1.99	1.99
2.00 H. 2.00	2.00	2.00
2.01 H. 2.01	2.01	2.01
2.02 H. 2.02	2.02	2.02
2.03 H. 2.03	2.03	2.03
2.04 H. 2.04	2.04	2.04
2.05 H. 2.05	2.05	2.05
2.06 H. 2.06	2.06	2.06
2.07 H. 2.07	2.07	2.07
2.08 H. 2.08	2.08	2.08
2.09 H. 2.09	2.09	2.09
2.10 H. 2.10	2.10	2.10
2.11 H. 2.11	2.11	2.11
2.12 H. 2.12	2.12	2.12
2.13 H. 2.13	2.13	2.13
2.14 H. 2.14	2.14	2.14
2.15 H. 2.15	2.15	2.15
2.16 H. 2.16	2.16	2.16
2.17 H. 2.17	2.17	2.17
2.18 H. 2.18	2.18	2.18
2.19 H. 2.19	2.19	2.19
2.20 H. 2.20	2.20	2.20
2.21 H. 2.21	2.21	2.21
2.22 H. 2.22	2.22	2.22
2.23 H. 2.23	2.23	2.23
2.24 H. 2.24	2.24	2.24
2.25 H. 2.25	2.25	2.25
2.26 H. 2.26	2.26	2.26
2.27 H. 2.27	2.27	2.27
2.28 H. 2.28	2.28	2.28
2.29 H. 2.29	2.29	2.29
2.30 H. 2.30	2.30	2.30
2.31 H. 2.31	2.31	2.31
2.32 H. 2.32	2.32	2.32
2.33 H. 2.33	2.33	2.33
2.34 H. 2.34	2.34	2.34
2.35 H. 2.35	2.35	2.35
2.36 H. 2.36	2.36	2.36
2.37 H. 2.37	2.37	2.37
2.38 H. 2.38	2.38	2.38
2.39 H. 2.39	2.39	2.39
2.40 H. 2.40	2.40	2.40
2.41 H. 2.41	2.41	2.41
2.42 H. 2.42	2.42	2.42
2.43 H. 2.43	2.43	2.43
2.44 H. 2.44	2.44	2.44
2.45 H. 2.45	2.45	2.45
2.46 H. 2.46	2.46	2.46
2.47 H. 2.47	2.47	2.47
2.48 H. 2.48	2.48	2.48
2.49 H. 2.49	2.49	2.49
2.50 H. 2.50	2.50	2.50
2.51 H. 2.51	2.51	2.51
2.52 H. 2.52	2.52	2.52
2.53 H. 2.53	2.53	2.53
2.54 H. 2.54	2.54	2.54
2.55 H. 2.55	2.55	2.55
2.56 H. 2.56	2.56	2.56
2.57 H. 2.57	2.57	2.57
2.58 H. 2.58	2.58	2.58
2.59 H. 2.59	2.59	2.59
2.60 H. 2.60	2.60	2.60
2.61 H. 2.61	2.61	2.61
2.62 H. 2.62	2.62	2.62
2.63 H. 2.63	2.63	2.63
2.64 H. 2.64	2.64	2.64
2.65 H. 2.65	2.65	2.65
2.66 H. 2.66	2.66	2.66
2.67 H. 2.67	2.67	2.67
2.68 H. 2.68	2.68	2.68
2.69 H. 2.69	2.69	2.69
2.70 H. 2.70	2.70	2.70
2.71 H. 2.71	2.71	2.71
2.72 H. 2.72	2.72	2.72
2.73 H. 2.73	2.73	2.73
2.74 H. 2.74	2.74	2.74
2.75 H. 2.75	2.75	2.75
2.76 H. 2.76	2.76	2.76
2.77 H. 2.77	2.77	2.77
2.78 H. 2.78	2.78	2.78
2.79 H. 2.79	2.79	2.79
2.80 H. 2.80	2.80	2.80
2.81 H. 2.81	2.81	2.81
2.82 H. 2.82	2.82	2.82
2.83 H. 2.83	2.83	2.83
2.84 H. 2.84	2.84	2.84
2.85 H. 2.85	2.85	2.85
2.86 H. 2.86	2.86	2.86
2.87 H. 2.87	2.87	2.87
2.88 H. 2.88	2.88	2.88
2.89 H. 2.89	2.89	2.89
2.90 H. 2.90	2.90	2.90
2.91 H. 2.91	2.91	2.91
2.92 H. 2.92	2.92	2.92
2.93 H. 2.93	2.93	2.93
2.94 H. 2.94	2.94	2.94
2.95 H. 2.95	2.95	2.95
2.96 H. 2.96	2.96	2.96
2.97 H. 2.97	2.97	2.97
2.98 H. 2.98	2.98	2.98
2.99 H. 2.99	2.99	2.99
3.00 H. 3.00	3.00	3.00
3.01 H. 3.01	3.01	3.01
3.02 H. 3.02	3.02	3.02
3.03 H. 3.03	3.03	3.03
3.04 H. 3.04	3.04	3.04
3.05 H. 3.05	3.05	3.05
3.06 H. 3.06	3.06	3.06
3.07 H. 3.07	3.07	3.07
3.08 H. 3.08	3.08	3.08
3.09 H. 3.09	3.09	3.09
3.10 H. 3.10	3.10	3.10
3.11 H. 3.11	3.11	3.11
3.12 H. 3.12	3.12	3.12
3.13 H. 3.13	3.13	3.13
3.14 H. 3.14	3.14	3.14
3.15 H. 3.15	3.15	3.15
3.16 H. 3.16	3.16	3.16
3.17 H. 3.17	3.17	3.17
3.18 H. 3.18	3.18	3.18
3.19 H. 3.19	3.19	3.19
3.20 H. 3.20	3.20	3.20
3.21 H. 3.21	3.21	3.21
3.22 H. 3.22	3.22	3.22
3.23 H. 3.23	3.23	3.23
3.24 H. 3.24	3.24	3.24
3.25 H. 3.25	3.25	3.25
3.26 H. 3.26	3.26	3.26
3.27 H. 3.27	3.27	3.27
3.28 H. 3.28	3.28	3.28
3.29 H. 3.29	3.29	3.29
3.30 H. 3.30	3.30	3.30
3.31 H. 3.31	3.31	3.31
3.32 H. 3.32	3.32	3.32
3.33 H. 3.33	3.33	3.33
3.34 H. 3.34	3.34	3.34
3.35 H. 3.35	3.35	3.35
3.36 H. 3.36	3.36	3.36
3.37 H. 3.37	3.37	3.37
3.38 H. 3.38	3.38	3.38
3.39 H. 3.39	3.39	3.39
3.40 H. 3.40	3.40	3.40
3.41 H. 3.41	3.41	3.41
3.42 H. 3.42	3.42	3.42
3.43 H. 3.43	3.43	3.43
3.44 H. 3.44	3.44	3.44
3.45 H. 3.45	3.45	3.45
3.46 H. 3.46	3.46	3.46
3.47 H. 3.47	3.47	3.47
3.48 H. 3.48	3.48	3.48
3.49 H. 3.49	3.49	3.49
3.50 H. 3.50	3.50	3.50
3.51 H. 3.51	3.51	3.51
3.52 H. 3.52	3.52	3.52
3.53 H. 3.53	3.53	3.53
3.54 H. 3.54	3.54	3.54
3.55 H. 3.55	3.55	3.55
3.56 H. 3.56	3.56	3.56
3.57 H. 3.57	3.57	3.57
3.58 H. 3.58	3.58	3.58
3.59 H. 3.59	3.59	3.59
3.60 H. 3.60	3.60	3.60
3.61 H. 3.61	3.61	3.61
3.62 H. 3.62	3.62	3.62
3.63 H. 3.63	3.63	3.63
3.64 H. 3.64	3.64	3.64
3.65 H. 3.65	3.65	3.65
3.66 H. 3.66	3.66	3.66
3.67 H. 3.67	3.67	3.67
3.68 H. 3.68	3.68	3.68
3.69 H. 3.69	3.69	3.69
3.70 H. 3.70	3.70	3.70
3.71 H. 3.71	3.71	3.71
3.72 H. 3.72	3.72	3.72
3.73 H. 3.73	3.73	3.73
3.74 H. 3.74	3.74	3.74
3.75 H. 3.75	3.75	3.75
3.76 H. 3.76	3.76	3.76
3.77 H. 3.77	3.77	3.77
3.78 H. 3.78	3.78	3.78
3.79 H. 3.79	3.79	3.79
3.80 H. 3.80	3.80	3.80
3.81 H. 3.81	3.81	3.81
3.82 H. 3.82	3.82	3.82
3.83 H. 3.83	3.83	3.83
3.84 H. 3.84	3.84	3.84
3.85 H. 3.85	3.85	3.85
3.86 H. 3.86	3.86	3.86
3.87 H. 3.87	3.87	3.87
3.88 H. 3.88	3.88	3.88
3.89 H. 3.89	3.89	3.89
3.90 H. 3.90	3.90	3.90
3.91 H. 3.91	3.91	3.91
3.92 H. 3.92	3.92	3.92
3.93 H. 3.93	3.93	3.93
3.94 H. 3.94	3.94	3.94

Table 2. SUDBURY CITY FOR RASTELAND SOILS. Continued

map symbol	Limitations rating	Restrictive features
1		
New 1/2	1	Too dry
2	2	Too dry
3	3	
New 1/2	4	
Large 1/2	5	
6	6	
7	7	
8	8	
9	9	
10	10	
11	11	
12	12	
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100	100	

Table 7 - SUSTAINABILITY FOR RANGELAND SHEPHERD - Continued

map symbol	Limitation rating	Restrictive features
111	Suited	Too arid, droughty depth to rock
112		small stones rooting depth
113		
114		
115		droughty depth to rock
116		
117	Suited	Too arid droughty, depth to rock
118		
119		
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name and map symbol	Limitation rating	Restrictive features
5 Bajaj amp	Poorly suited	Droughty, erodes easily
Blackwood +	Well suited	
Bamboo	Poorly suited	Small stones
8 A 1/2 amp	Poorly suited	- - Droughty
A 1/2	Well suited	
1,500 Wash	Well suited	
Wash	Well suited	
Wash	Well suited	
Wash	Well suited	
55 Rubble land + - - - - -	Poorly suited	- Droughty, large stones
8 8	Poorly suited	Small stones, rooting depth
12 8 8	Poorly suited	Small stones, rooting depth
8 8 8	Poorly suited-----	Small stones, rooting depth
8 8 8	Poorly suited-----	Rooting depth
Farmland	Too arid, droughty	large stones
8 8 8 8	Poorly suited-----	Rooting depth
8 8 8	Poorly suited -	Rooting depth
1,500 Wash	Too arid, too clayey	
8 8 8 8 8	Too arid, too clayey	
85 Potatoes	Small stones	

Table 7 SUITABILITY FOR RANGELAND SHEPHERDING-Continued

Site	Soil	Vegetation	Notes
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map symbol	limitation rating	Restrictive features
4 Wauwatah	4	Too arid
4 L. sp. =	Poorly suited	Droughty small stones rooting depth
4 L. sp. =	Poorly suited	Too arid droughty excess salt
4 L. sp. =	Poorly suited	Too arid droughty large stones
4 L. sp. =	Not rated	

TABLE 3. WILDLIFE HABITAT

Map of area	Area	Potential as habitat for				
		Wild	Wild	Wild	Wild	Wild
		life	life	life	life	life
1010						
1011						
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Map symbol and soil name	Grain and seed type	Potential for habitat elements							Potential as habitat for--			
		Grasses + legumes	Wild herb- aceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild life	Wood- land wild- life	Wetland wild life	+ Range land wild life
11 N. Pine	---	---	Poor	---	---	Poor	---	---	---	---	---	Poor
Verdugo	---	---	Poor	---	---	Poor	---	---	---	---	---	Poor
109 Carrizo	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
McMinn	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
108 Yucca	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
107 Sage	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
106 Sage	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
105 Sage	Poor	Fair	Very Poor	---	---	Very Poor	Poor	Poor	Poor	---	Poor	Very Poor
104 Sage	Very Poor	Very Poor	Poor	---	---	Poor	---	---	Poor	---	---	Poor
103 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
102 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
101 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
100 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
99 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
98 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
97 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
96 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
95 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
94 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
93 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
92 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
91 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
90 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
89 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
88 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
87 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
86 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
85 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
84 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
83 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
82 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
81 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
80 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
79 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
78 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
77 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
76 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
75 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
74 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
73 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
72 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
71 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
70 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
69 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
68 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
67 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
66 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
65 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
64 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
63 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
62 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
61 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
60 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
59 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
58 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
57 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
56 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
55 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
54 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
53 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
52 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
51 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
50 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
49 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
48 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
47 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
46 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
45 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
44 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
43 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
42 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
41 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
40 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
39 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
38 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
37 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
36 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
35 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
34 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
33 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
32 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
31 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
30 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
29 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
28 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
27 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
26 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
25 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
24 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
23 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
22 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
21 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
20 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
19 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
18 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
17 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
16 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
15 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
14 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
13 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
12 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
11 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
10 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
9 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
8 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
7 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
6 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
5 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
4 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
3 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
2 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
1 McConnell	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair

TABLE 4. Potential for Nutrient Deficiency

Map symbol and soil name	Grain and seed crops	Potential for Nutrient Deficiency					Potential for Nutrient Deficiency				
		Grasses and legumes	Wild herbs and cous plants	Hard wood trees	Soft wood trees	Plants in general	Grasses and legumes	Wild herbs and cous plants	Hard wood trees	Soft wood trees	Plants in general
4a. <i>Payson</i>			Fair			Fair					Fair
4b. <i>Washburn</i>		++	Very			Very	Very	Fair			+
5. <i>Payson</i>			Poor	++	+++	Poor	+++			++	-----
6a. <i>Washburn</i>			Fair	+		Fair					Fair
7. <i>Washburn</i>		+	Poor			Poor	+				-----
8. <i>Washburn</i>		+++	Poor	+++	+++	Poor	+++	+++			+
9. <i>Washburn</i>			-----	+++		Poor					Poor
10. <i>Washburn</i>			-----	+++	++	Good	+++	+++	++	+	Good
11. <i>Washburn</i>			Fair	+++	++	Fair					Fair
12. <i>Washburn</i>			Fair	++	++	Fair					-----
13. <i>Washburn</i>			Fair			Fair			+		Fair
14. <i>Washburn</i>	++	Very Poor	Poor	Very Poor	++	Fair	Very Poor	Very Poor	++	+++	Fair
15. <i>Washburn</i>											
16. <i>Washburn</i>			Fair			Fair			+		Fair
17. <i>Washburn</i>			Poor		+++	Poor	+++	++			Poor
18. <i>Washburn</i>			Fair	++	+++	Fair	+++	+++	++	++	Fair
19. <i>Washburn</i>			Fair	+	++	Fair	+++	+		++	Fair
20. <i>Washburn</i>		+++	Fair	+++	+++	Fair	+++	+++	+++	+++	Fair
21. <i>Washburn</i>		+++	Poor	+++	+++	Poor	+++	+++	+++	+++	Poor
22. <i>Washburn</i>		+++	Fair	+++	+++	Fair	+++	+++	+++	+++	Fair
23. <i>Washburn</i>		+++	Poor	+++	+++	Poor	+++	+++	+++	+++	Poor
24. <i>Washburn</i>		+++	Fair	+++	+++	Fair	+++	+++	+++	+++	Fair
25. <i>Washburn</i>		+++	Poor	+++	+++	Poor	+++	+++	+++	+++	Poor
26. <i>Washburn</i>		+++	Fair	+++	+++	Fair	+++	+++	+++	+++	Fair
27. <i>Washburn</i>		+++	Poor	+++	+++	Poor	+++	+++	+++	+++	Poor
28. <i>Washburn</i>		+++	Fair	+++	+++	Fair	+++	+++	+++	+++	Fair
29. <i>Washburn</i>		+++	Poor	+++	+++	Poor	+++	+++	+++	+++	Poor
30. <i>Washburn</i>		+++	Fair	+++	+++	Fair	+++	+++	+++	+++	Fair

TABLE 4
WILDLIFE HAZARD CONTINUED

May 1961 Site	Potential for habitat elements								Potential as habitat for				Remarks
	Forest		Shrub		Grass		Water		Soil		Vegetation		
	1	2	3	4	5	6	7	8	9	10	11	12	
	Good	Fair	Poor	Very Poor	Good	Fair	Poor	Very Poor	Good	Fair	Poor	Very Poor	
Overalls			Fair			Fair							
Haystack		Poor	Fair			Poor	Very	Very Poor	Poor			Very Poor	Poor
171 Devada			Fair			Fair							Fair
172 Indian Creek			Fair			Fair							Fair
173 Devada			Fair			Fair							Fair
174 Devada			Fair			Fair							Fair
175 Devada			Fair			Fair							Fair
176 Devada			Fair			Fair							Fair
177 Devada			Fair			Fair							Fair
178 Devada			Fair			Fair							Fair
179 Devada			Fair			Fair							Fair
180 Devada			Fair			Fair							Fair
181 Devada			Fair			Fair							Fair
182 Devada			Fair			Fair							Fair
183 Devada			Fair			Fair							Fair
184 Devada			Fair			Fair							Fair
185 Devada			Fair			Fair							Fair
186 Devada			Fair			Fair							Fair
187 Devada			Fair			Fair							Fair
188 Devada			Fair			Fair							Fair
189 Devada			Fair			Fair							Fair
190 Devada			Fair			Fair							Fair
191 Devada			Fair			Fair							Fair
192 Devada			Fair			Fair							Fair
193 Devada			Fair			Fair							Fair
194 Devada			Fair			Fair							Fair
195 Devada			Fair			Fair							Fair
196 Devada			Fair			Fair							Fair
197 Devada			Fair			Fair							Fair
198 Devada			Fair			Fair							Fair
199 Devada			Fair			Fair							Fair
200 Devada			Fair			Fair							Fair

TABLE 5 - WILDLIFE HABITAT (Continued)

Map symbols and names	Fair and good	Potential for habitat elements							Potential as habitat for			
		Grass	Hard- wood forest	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open land wild- life	Wood- land wild- life	Wetland wild- life	Range land wild- life	
		+	++	+++	+	++	+++	+	++	+++	+	
113 Ward cut #	or	+	Fair	+	Fair	Very Poor	Very Poor	Poor	Very Poor	Very Poor	Fair	
114 Tussock #		++	Fair	++	Fair	+	+	+	+	+	Fair	
115 Ward cut #	or	very Poor	Fair	++	Very Poor	Fair	Very Poor	Very Poor	Poor	Very Poor	Very Poor	Fair
116 Tussock #			Fair			Fair		+	++	+	Fair	
117 Tussock #		+	Fair	+	+	Fair	++	++	++	++	Fair	
118 Natchez #	++	+	Fair	++	Fair	+	+	++	++	++	Fair	
119 Hart Camp #	++	++	Fair		Fair				+	+	Fair	
120 N. white	++	+	Fair		+						Fair	
121 Tussock #	++	++	Fair	++	+	Fair	+	++	++	+	Fair	
122 Tussock #	++	++	Fair		Fair	Fair	+		+		Fair	
123 Natchez #	++	++	Fair	++	+	Fair	++	++	++	++	Fair	
124 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
125 Hart Camp #	++	++	Fair	+	++	Fair	++	+	++	++	Fair	
126 N. white			Fair	+	++	Fair	++	++	++	++	Fair	
127 New road		++	Fair		+	Fair	++	++	++	++	Fair	
128 Hart Camp #	+	++	Fair	++	++	Fair	++	++	++	++	Fair	
129 Tussock #		++	Fair	++	++	Fair	++	++	++	++	Fair	
130 Hart Camp #	+	++	Fair	++	++	Fair	++	++	++	++	Fair	
131 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
132 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
133 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
134 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
135 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
136 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
137 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
138 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
139 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
140 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
141 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
142 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
143 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
144 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
145 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
146 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
147 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
148 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
149 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
150 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
151 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
152 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
153 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
154 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
155 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
156 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
157 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
158 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
159 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
160 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
161 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
162 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
163 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
164 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
165 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
166 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
167 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
168 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
169 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
170 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
171 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
172 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
173 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
174 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
175 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
176 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
177 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
178 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
179 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
180 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
181 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
182 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
183 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
184 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
185 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
186 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
187 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
188 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
189 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
190 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
191 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
192 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
193 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
194 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
195 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
196 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
197 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
198 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
199 Tussock #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	
200 Hart Camp #	++	++	Fair	++	++	Fair	++	++	++	++	Fair	

TABLE 5. WILDLIFE HABITAT (Continued)

Map number and name	Area and seed crops	Potential for habitat elements							Potential as habitat for				Range class
		Grassland and legumes	Wild herbaceous plants	Hard wood trees	Conif. shrub plants	Shrubs	Wetland plants	Shallow water areas	Open-land wild life	Wood-land wild life	Wetland wild life		
124	Amoy	+	Fair			Fair	++	+	++	++	++		Fair
125	Amoy	++	Fair		++	Fair	+	+	++	++	++		Fair
126	Amoy	+	Very Poor	+	++	Very Poor		+	++	++	++		Very Poor
127	Amoy	++	Poor	++	++	Poor	++	++	++	++	++		Poor
128	Amoy	++	Very Poor	++	+	Very Poor	++	++	++	++	++		Very Poor
129	Amoy	++	Poor	++		Poor	++	+			++		Poor
130	Amoy	+	Fair	++	++	Fair	+		++	++	++		Fair
131	Amoy	++	Fair		++	Fair	+	++	++	+	++		Fair
132	Amoy	++	Fair	+	++	Fair	+	+	++				Fair
133	Amoy	++	Very Poor	++	++	Very Poor	++	++	++	++	++		Very Poor
134	Amoy	++	Very Poor	++	++	Very Poor	++	++	++	++	++		Very Poor
135	Amoy	++	Fair			Fair							Fair
136	Amoy	++	Poor	++		Poor	++		++	++	++		Poor
137	Amoy	++	Poor	++		Poor	+						Poor
138	Amoy	++	Fair			Fair							Fair
139	Amoy	++	Fair			Fair							Fair
140	Amoy	++	Good	++	++	Good	++						Good
141	Amoy	++	Good	++	++	Good	++						Good
142	Amoy	++	Good	++	++	Good	++						Good
143	Amoy	++	Good	++	++	Good	++						Good
144	Amoy	++	Good	++	++	Good	++						Good
145	Amoy	++	Good	++	++	Good	++						Good
146	Amoy	++	Good	++	++	Good	++						Good
147	Amoy	++	Good	++	++	Good	++						Good
148	Amoy	++	Good	++	++	Good	++						Good
149	Amoy	++	Good	++	++	Good	++						Good
150	Amoy	++	Good	++	++	Good	++						Good
151	Amoy	++	Good	++	++	Good	++						Good
152	Amoy	++	Good	++	++	Good	++						Good
153	Amoy	++	Good	++	++	Good	++						Good
154	Amoy	++	Good	++	++	Good	++						Good
155	Amoy	++	Good	++	++	Good	++						Good
156	Amoy	++	Good	++	++	Good	++						Good
157	Amoy	++	Good	++	++	Good	++						Good
158	Amoy	++	Good	++	++	Good	++						Good
159	Amoy	++	Good	++	++	Good	++						Good
160	Amoy	++	Good	++	++	Good	++						Good
161	Amoy	++	Good	++	++	Good	++						Good
162	Amoy	++	Good	++	++	Good	++						Good
163	Amoy	++	Good	++	++	Good	++						Good
164	Amoy	++	Good	++	++	Good	++						Good
165	Amoy	++	Good	++	++	Good	++						Good
166	Amoy	++	Good	++	++	Good	++						Good
167	Amoy	++	Good	++	++	Good	++						Good
168	Amoy	++	Good	++	++	Good	++						Good

TABLE 5. WILDLIFE HABITAT Continued

Map No. and Location	Potential for habitat elements						Potential as habitat for			
	Shrub-land	Grass-land	Forest	Wetland	Shallow water areas	Wetland plants	Upland wild life	Wetland wild life	Wetland wild life	Range land wild life
1276 Hart Camp			Fair			Fair				Fair
Keywest										Poor
Westhutte	Very poor	Very poor	Fair		Very poor	Fair	Very poor	Fair	Very poor	Fair
1277 Hart Camp			Fair			Fair				Fair
R. H. H. H.			Fair			Fair				Fair
1278 Hart Camp			Fair			Fair				Fair
1279 Hart Camp			Fair			Fair				Fair
1280 Hart Camp			Fair			Fair				Fair
1281 Hart Camp			Fair			Fair				Fair
1282 Hart Camp			Fair			Fair				Fair
1283 Hart Camp			Fair			Fair				Fair
1284 Hart Camp			Fair			Fair				Fair
1285 Hart Camp			Fair			Fair				Fair
1286 Hart Camp			Fair			Fair				Fair
1287 Hart Camp			Fair			Fair				Fair
1288 Hart Camp			Fair			Fair				Fair
1289 Hart Camp			Fair			Fair				Fair
1290 Hart Camp			Fair			Fair				Fair
1291 Hart Camp			Fair			Fair				Fair
1292 Hart Camp			Fair			Fair				Fair
1293 Hart Camp			Fair			Fair				Fair
1294 Hart Camp			Fair			Fair				Fair
1295 Hart Camp			Fair			Fair				Fair
1296 Hart Camp			Fair			Fair				Fair
1297 Hart Camp			Fair			Fair				Fair
1298 Hart Camp			Fair			Fair				Fair
1299 Hart Camp			Fair			Fair				Fair
1300 Hart Camp			Fair			Fair				Fair
1301 Hart Camp			Fair			Fair				Fair
1302 Hart Camp			Fair			Fair				Fair
1303 Hart Camp			Fair			Fair				Fair
1304 Hart Camp			Fair			Fair				Fair
1305 Hart Camp			Fair			Fair				Fair
1306 Hart Camp			Fair			Fair				Fair
1307 Hart Camp			Fair			Fair				Fair
1308 Hart Camp			Fair			Fair				Fair
1309 Hart Camp			Fair			Fair				Fair
1310 Hart Camp			Fair			Fair				Fair
1311 Hart Camp			Fair			Fair				Fair
1312 Hart Camp			Fair			Fair				Fair
1313 Hart Camp			Fair			Fair				Fair
1314 Hart Camp			Fair			Fair				Fair
1315 Hart Camp			Fair			Fair				Fair
1316 Hart Camp			Fair			Fair				Fair
1317 Hart Camp			Fair			Fair				Fair
1318 Hart Camp			Fair			Fair				Fair
1319 Hart Camp			Fair			Fair				Fair
1320 Hart Camp			Fair			Fair				Fair
1321 Hart Camp			Fair			Fair				Fair
1322 Hart Camp			Fair			Fair				Fair
1323 Hart Camp			Fair			Fair				Fair
1324 Hart Camp			Fair			Fair				Fair
1325 Hart Camp			Fair			Fair				Fair
1326 Hart Camp			Fair			Fair				Fair
1327 Hart Camp			Fair			Fair				Fair
1328 Hart Camp			Fair			Fair				Fair
1329 Hart Camp			Fair			Fair				Fair
1330 Hart Camp			Fair			Fair				Fair
1331 Hart Camp			Fair			Fair				Fair
1332 Hart Camp			Fair			Fair				Fair
1333 Hart Camp			Fair			Fair				Fair
1334 Hart Camp			Fair			Fair				Fair
1335 Hart Camp			Fair			Fair				Fair
1336 Hart Camp			Fair			Fair				Fair
1337 Hart Camp			Fair			Fair				Fair
1338 Hart Camp			Fair			Fair				Fair
1339 Hart Camp			Fair			Fair				Fair
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1342 Hart Camp			Fair			Fair				Fair
1343 Hart Camp			Fair			Fair				Fair
1344 Hart Camp			Fair			Fair				Fair
1345 Hart Camp			Fair			Fair				Fair
1346 Hart Camp			Fair			Fair				Fair
1347 Hart Camp			Fair			Fair				Fair
1348 Hart Camp			Fair			Fair				Fair
1349 Hart Camp			Fair			Fair				Fair
1350 Hart Camp			Fair			Fair				Fair
1351 Hart Camp			Fair			Fair				Fair
1352 Hart Camp			Fair			Fair				Fair
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1361 Hart Camp			Fair			Fair				Fair
1362 Hart Camp			Fair			Fair				Fair
1363 Hart Camp			Fair			Fair				Fair
1364 Hart Camp			Fair			Fair				Fair
1365 Hart Camp			Fair			Fair				Fair
1366 Hart Camp			Fair			Fair				Fair
1367 Hart Camp			Fair			Fair				Fair
1368 Hart Camp			Fair			Fair				Fair
1369 Hart Camp			Fair			Fair				Fair
1370 Hart Camp			Fair			Fair				Fair
1371 Hart Camp			Fair			Fair				Fair
1372 Hart Camp			Fair			Fair				Fair
1373 Hart Camp			Fair			Fair				Fair
1374 Hart Camp			Fair			Fair				Fair
1375 Hart Camp			Fair			Fair				Fair
1376 Hart Camp			Fair			Fair				Fair
1377 Hart Camp			Fair			Fair				Fair
1378 Hart Camp			Fair			Fair				Fair
1379 Hart Camp			Fair			Fair				Fair
1380 Hart Camp			Fair			Fair				Fair
1381 Hart Camp			Fair			Fair				Fair
1382 Hart Camp			Fair			Fair				Fair
1383 Hart Camp			Fair			Fair				Fair
1384 Hart Camp			Fair			Fair				Fair
1385 Hart Camp			Fair			Fair				Fair
1386 Hart Camp			Fair			Fair				Fair
1387 Hart Camp			Fair			Fair				Fair
1388 Hart Camp			Fair			Fair				Fair
1389 Hart Camp			Fair			Fair				Fair
1390 Hart Camp			Fair			Fair				Fair
1391 Hart Camp			Fair			Fair				Fair
1392 Hart Camp			Fair			Fair				Fair
1393 Hart Camp			Fair			Fair				Fair
1394 Hart Camp			Fair			Fair				Fair
1395 Hart Camp			Fair			Fair				Fair
1396 Hart Camp			Fair			Fair				Fair
1397 Hart Camp			Fair			Fair				Fair
1398 Hart Camp			Fair			Fair				Fair
1399 Hart Camp			Fair			Fair				Fair
1400 Hart Camp			Fair			Fair				Fair

TABLE 1. - Plant communities and their soil types

Map symbol and soil name	Plant community											Range land wild life
	Grass and seed crops	Grasses and legumes	Herb- aceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Low land wild- life	High land wild- life	Wetland wild- life	
1103 van Kammen	---	---	Very Poor	---	---	Very Poor	---	---	---	---	---	Very Poor
1104 Updike	---	---	Very Poor	---	---	Very Poor	---	---	---	---	---	Very Poor
Longdiss	---	---	Poor	---	---	Poor	---	---	---	---	---	Poor
110 Longdiss	---	---	Poor	---	---	Poor	---	---	---	---	---	Poor
Updike	---	---	Very Poor	---	---	Very Poor	---	---	---	---	---	Very Poor
1111 Longdiss	---	---	Poor	---	---	Poor	---	---	---	---	---	Poor
Neodylet	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
Amid Spigueria	---	---	---	---	---	---	Good	Good	---	---	Good	---
1112 Longdiss	---	---	Poor	---	---	Poor	---	---	---	---	---	Poor
Highway	---	---	Poor	---	---	Poor	---	---	---	---	---	Poor
Longdiss	---	---	Poor	---	---	Poor	---	---	---	---	---	Poor
111 Highway	---	---	Poor	---	---	Poor	---	---	---	---	---	Poor
1114 Highway	---	---	Poor	---	---	Poor	---	---	---	---	---	Poor
Updike	---	---	Very Poor	---	---	Very Poor	---	---	---	---	---	Very Poor
1115 Keywat	Poor	Poor	Fair	---	---	Poor	Very Poor	Very Poor	Poor	---	Very Poor	Poor
Devada	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
Hart Camp	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair
1116 Keywat	Poor	Poor	Fair	---	---	Poor	Very Poor	Very Poor	Poor	---	Very Poor	Poor
1117 Baywat	Poor	Poor	Fair	---	---	Poor	Very Poor	Very Poor	Poor	---	Very Poor	Poor
Westbush	Very Poor	Very Poor	Fair	---	---	Fair	Very Poor	Very Poor	Poor	Very Poor	Very Poor	Fair
Hapgood	---	---	Fair	---	---	Fair	---	---	---	---	---	Fair

TABLE 5. WILDLIFE HABITAT Continued

Map symbols and symbols	Potential for habitat elements								Potential as habitat for				
	Grass land	Grass land aquatic	Grass land aquatic	Grass land aquatic	Grass land aquatic	Conifer trees plants	Shrubs plants	Wetland plants	Shallow water areas	Open land wild life	Wood land wild life	Wetland wild life	Range land wild life
	Grass land	Grass land aquatic	Grass land aquatic	Grass land aquatic	Grass land aquatic	Conifer trees plants	Shrubs plants	Wetland plants	Shallow water areas	Open land wild life	Wood land wild life	Wetland wild life	Range land wild life
114 Haystack	Poor	Poor	Fair				Poor	Very Poor	Very Poor	Poor	-	Very Poor	Poor
115 Haystack			Fair				Poor						Fair
116 Haystack	Poor	Poor	Fair				Poor	Very Poor	Very Poor	Poor	-	Very Poor	Poor
117 Haystack			Fair				Poor						Fair
118 Haystack	Very Poor	Very Poor	Fair			Very Poor	Fair	Very Poor	Very Poor	Poor	Very Poor	Very Poor	Fair
119 Haystack			Fair				Poor						Fair
120 Haystack			Fair				Poor						Fair
121 Haystack			Fair				Poor						Fair
122 Haystack			Fair				Poor						Fair
123 Haystack			Fair				Poor						Fair
124 Haystack			Fair				Poor						Fair
125 Haystack			Fair				Poor						Fair
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128 Haystack			Fair				Poor						Fair
129 Haystack			Fair				Poor						Fair
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196 Haystack			Fair				Poor						Fair
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199 Haystack			Fair				Poor						Fair
200 Haystack			Fair				Poor						Fair











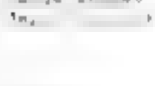
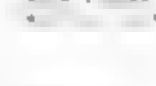
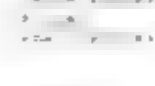

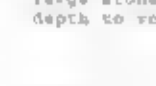

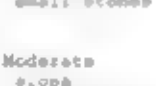


















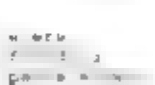







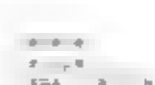




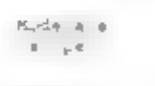




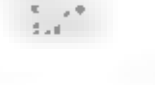
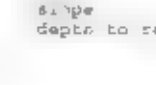
TABLE 3. WILDLIFE HABITAT (Continued)

Map # and Site Name	Area in acres	Potential for habitat as shown by							Potential as habitat for				Range in value
		Grasses and legumes	Wild herbaceous plants	Hard wood trees	Conifer and deciduous plants	Shrubs	Wetland plants	Shallow water areas	Open land wild life	Wooded land wild life	Wetland wild life		
401 New			Fair			Fair	Poor	Good			Fair	Fair	
402 Wetland	++						Good	Good			Good		
Wetland-----	+++	++					Good	Good	++	+++	Good		
403 Rubble Land	--	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor
404 Rubble	++	+	+++	Fair			Fair						Fair
405 Rubble				Fair			Fair						Fair
406 Rubble			++	Fair			Fair						Fair
407 Rubble		+	Poor	Good		Fair	Good						
408 Rubble Land	+++	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor
409 Forest	++	+++	+++	Fair	-	-	Fair		+	++			Fair
410 Madeline	-	+++	+++	Fair	++	-	Fair		+	++			Fair
411 Wetland	++++	++		Fair			Fair	Good	Good				Fair
412 Wetland			+	Poor	-		Poor	Good	Good				Poor
413 Rubble		+++	+++	Fair	+++	+++	Fair		+	++	+++	+++	Fair
414 Rubble				Fair	++	++	Fair	++	++	+			Fair
415 Rubble		+++	+++	Fair	+++	+	Fair	++	+++				Fair
416 Rubble		+++	+++	Fair	+++	+++	Fair	+++	+++	+			Fair
417 Rubble				Fair			Fair						Fair
418 Rubble				Fair		+++	Fair						Fair
419 Rubble				Fair		+++	Fair						Fair
420 Rubble				Fair		+++	Fair						Fair
421 Rubble				Fair		+++	Fair						Fair
422 Rubble				Fair		+++	Fair						Fair
423 Rubble				Fair		+++	Fair						Fair
424 Rubble				Fair		+++	Fair						Fair
425 Rubble				Fair		+++	Fair						Fair
426 Rubble				Fair		+++	Fair						Fair
427 Rubble				Fair		+++	Fair						Fair
428 Rubble				Fair		+++	Fair						Fair
429 Rubble				Fair		+++	Fair						Fair
430 Rubble				Fair		+++	Fair						Fair
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499 Rubble				Fair		+++	Fair						Fair
500 Rubble				Fair		+++	Fair						Fair

TABLE 3. MYOCYTES HAVE "AT" CONTINUED

[illegible]

TABLE 15. RECENT SOIL DEVELOPMENT Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1015 (con.)					
1015 (con.)	small stones large stones depth to rock				
1015					
1015	large stones small stones				Severe small stones large stones
1015					
1015	Severe large stones depth to rock				Severe large stones depth to rock
1015					
1015	Moderate small stones	Moderate small stones	Severe small stones	Slight	Severe droughty
1015					
1015	Moderate slope small stones	Moderate slope small stones	Severe slope small stones	Slight	Severe droughty
1015					
1015	Severe small stones depth to rock	Severe small stones	Severe small stones	Moderate dusty	Severe small stones depth to rock
1015					
1015	Moderate small stones	Moderate small stones	Severe small stones	Slight	Moderate small stones depth to rock
1015					
1015	Moderate small stones	Moderate small stones	Severe small stones	Slight	Moderate small stones depth to rock
1015					
1015	Severe small stones depth to rock	Severe small stones	Severe small stones	Moderate dusty	Severe small stones depth to rock
1015					
1015	Severe small stones depth to rock	Severe small stones	Severe small stones	Moderate dusty	Severe small stones depth to rock
1015					
1015	Severe small stones depth to rock	Severe small stones	Severe small stones	Moderate dusty	Severe small stones depth to rock

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Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1110 Indian Creek- -	Severe large stones cemented pan	Severe: large stones, cemented pan	Severe large stones, slope small stones	Severe: large stones	Severe large stones cemented pan
1111 Suffern- - -	Severe cemented pan	Severe cemented pan	Severe large stones slope small stones	Moderate: dusty	Severe cemented pan
1112 Luffus-----	Severe wetness, excess salt	Severe excess salt	Severe: wetness, excess salt	Moderate: wetness, excess salt	Severe excess salt, excess sodium fluoride
1113 Hedman	Severe excess salt	Severe excess salt	Severe excess salt	Severe excess salt	Severe excess sodium fluoride
1114 McConnell ++ ++	Severe flooding	Moderate large stones excess salt	Severe large stones, excess salt	Slight	Moderate small stones large stones droughty
1115 Hedman	Moderate small stones droughty	Moderate small stones droughty	Moderate small stones droughty	Slight	Moderate small stones droughty
1116 Hedman	Moderate small stones droughty	Moderate small stones droughty	Moderate small stones droughty	Moderate	Moderate small stones droughty
1117 Jaybee	Severe large stones depth to rock	Severe large stones depth to rock	Severe large stones depth to rock	Severe large stones depth to rock	Severe large stones depth to rock
1118 Hedman	Moderate large stones depth to rock	Moderate large stones depth to rock	Moderate large stones depth to rock	Moderate large stones depth to rock	Severe large stones depth to rock
1119 Hedman	Severe large stones depth to rock	Severe large stones depth to rock	Severe large stones depth to rock	Moderate large stones depth to rock	Severe large stones depth to rock
1120 Sagehen	Severe large stones depth to rock	Severe large stones depth to rock	Severe large stones depth to rock	Severe large stones depth to rock	Severe large stones depth to rock

TABLE 1. SOIL PROPERTIES AND USES

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1135 Howatt.....	Severe slope small stones depth to rock	Severe slope large stones small stones	Severe large stones slope small stones	Severe small stones	Severe small stones depth to rock
Old Camp.....	Severe slope large stones depth to rock	Severe slope large stones depth to rock	Severe large stones slope small stones	Moderate slope dusty	Severe slope depth to rock
14 ys mv	Severe flooding	Moderate exposed soil	Moderate small stones	Moderate dusty	Moderate exposed soil
4 ys mv	Moderate exposed soil	Moderate exposed soil	Moderate small stones		Moderate exposed soil droughty
4 ys mv	Moderate small stones	Moderate small stones	Severe small stones	Slight	Severe droughty
4 ys mv	Moderate small stones	Moderate small stones	Severe small stones	Slight	Moderate small stones
4 ys mv	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Moderate slope	Severe slope small stones depth to rock
4 ys mv	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Severe small stones	Severe small stones cemented pan
4 ys mv	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Severe slope	Severe small stones slope depth to rock
4 ys mv	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Slight	Severe depth to rock
4 ys mv	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Moderate slope	Severe slope depth to rock
4 ys mv	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Severe slope small stones depth to rock	Slight	Slight

TABLE 10 RE SEATING FOR DEVELOPMENT Continued

[illegible]

TABLE 10. RECREATIONAL USE ELEMENT - Continued

Map symbol and soil name	Field notes	Soil areas	Playgrounds	Paths and trails	Soil fairways
1195 Bina	Severe slope	Severe slope	Severe slope	Moderate slope	Severe slope
1200 Ashcamp	Severe depth to rock	Severe depth to rock	Severe depth to rock	Severe depth to rock	Severe depth to rock
1215 Piney	Moderate slope	Moderate slope	Moderate slope	Slight	Moderate droughty slope
1220 Piney	Moderate slope	Moderate slope	Moderate slope	Slight	Moderate droughty slope
1225 Piney	Severe depth to rock	Severe depth to rock	Severe depth to rock	Slight	Severe depth to rock
1230 Kearney	Slight	Slight	Moderate slope	Slight	Severe depth to rock
1235 Highat	Severe excess sodium	Severe excess sodium	Severe excess sodium	Severe excess sodium	Severe excess sodium
1240 Piney	Moderate slope	Moderate slope	Moderate slope	Moderate slope	Moderate slope
1245 Piney	Severe no sand	Severe no sand	Severe no sand	Severe no sand	Moderate no sand
1250 Ashcamp	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
1255 Drump	Severe slope	Severe slope	Severe slope	Severe slope	Severe slope
1260 Schamp	Moderate slope	Moderate slope	Severe slope	Severe slope	Moderate slope
1265 Raglan	Moderate slope	Moderate slope	Moderate slope	Moderate slope	Moderate slope

TABLE 13. PHYSICAL SOIL DESCRIPTION. CONTINUED













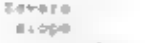














































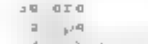









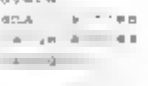


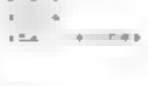


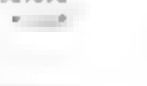


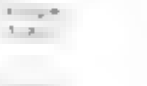
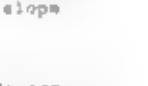
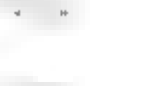




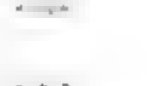




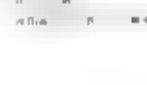





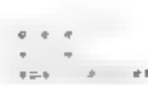




























Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
251 (con) Ash run	 Ash run	 Ash run	 Ash run	 Ash run	 Ash run
252 Ash run	 Ash run	 Ash run	 Ash run	 Ash run	 Ash run
253 Ash run	 Ash run	 Ash run	 Ash run	 Ash run	 Ash run
254 Ash run	 Ash run	 Ash run	 Ash run	 Ash run	 Ash run
255 Newlands	 Newlands	 Newlands	 Newlands	 Newlands	 Newlands
256 Newlands	 Newlands	 Newlands	 Newlands	 Newlands	 Newlands
257 Newlands	 Newlands	 Newlands	 Newlands	 Newlands	 Newlands
258 Newlands	 Newlands	 Newlands	 Newlands	 Newlands	 Newlands
259 Newlands	 Newlands	 Newlands	 Newlands	 Newlands	 Newlands
260 Newlands	 Newlands	 Newlands	 Newlands	 Newlands	 Newlands
261 Newlands	 Newlands	 Newlands	 Newlands	 Newlands	 Newlands
262 Newlands	 Newlands	 Newlands	 Newlands	 Newlands	 Newlands
263 Newlands	 Newlands	 Newlands	 Newlands	 Newlands	 Newlands

TABLE 2. FEATURES OF THE WASHOE COUNTY, NEVADA, NORTH PART, PART II

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
266 P. 1/2 A. 1/2					
Wend					
270 Hartley					
271 Hartley					
272 Hartley					
273 Hartley					
274 Hartley					
275 Hartley					
276 Hartley					
277 Hartley					
278 Hartley					
279 Hartley					

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TABLE 17. SOIL SURVEY SUMMARY Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Faths and trails	Golf fairways
45-100 Sandy loam	Severe slope small stones	Severe slope small stones	Severe slope small stones	Moderate slope	Severe small stones, slope
46-100 Sandy loam	Severe slope small stones, depth to rock	Severe slope small stones, depth to rock	Severe slope small stones, depth to rock	Moderate slope	Severe small stones, slope, depth to rock
Westbottle-----	Severe slope	Severe slope	Severe slope small stones	Moderate slope dusty	Severe slope
Rapgood-----	Severe slope small stones	Severe slope small stones	Severe slope small stones	Moderate slope	Severe slope small stones
47-100 Sandy loam	Severe slope depth to rock	Severe slope depth to rock	Severe slope large stones, small, stones	Moderate slope	Severe slope small stones
Blackwood-----	Severe slope	Severe slope	Severe slope small stones	Moderate slope	Severe slope
Kearney-----	Severe slope small stones	Severe slope small stones	Severe slope small stones	Severe slope small stones	Severe slope small stones
48-100 Sandy loam	Severe slope depth to rock	Severe slope depth to rock	Severe slope small stones	Severe slope	Severe slope depth to rock
Blackwood-----	Severe slope	Severe slope	Severe slope small stones	Severe slope	Severe slope
Puma-----	Severe slope small stones	Severe slope small stones	Severe slope small stones	Severe slope small stones	Severe slope small stones
49-100 Badger camp	Severe slope depth to rock	Severe slope depth to rock	Severe slope small stones	Moderate slope	Severe slope depth to rock
Blackwood-----	Severe slope	Severe slope	Severe slope small stones	Moderate slope	Severe slope
50-100 Wash	Severe slope small stones	Severe slope small stones	Severe slope small stones	Severe slope small stones	Severe slope small stones

TABLE 10. REVEALATIONS OF EXPONENT Continued

[illegible]

[illegible]

TABLE 10. RECREATIONAL ELEMENTS Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
9981 (cont.) Rubble Land-----	Severe slope red soil	Severe slope small stones	Severe slope small stones	Severe large stones, slope red soil	Severe red soil small stones

TABLE 10. SOIL SLIP INVESTIGATION

The information in this report indicates the dominant soil condition but does not eliminate the need for further investigation.

Map Symbol	Area	Soil Type	Soil Condition	Soil Condition	Soil Condition	Soil Condition	Soil Condition
100	100	100	100	100	100	100	100
101	101	101	101	101	101	101	101
102	102	102	102	102	102	102	102
103	103	103	103	103	103	103	103
104	104	104	104	104	104	104	104
105	105	105	105	105	105	105	105
106	106	106	106	106	106	106	106
107	107	107	107	107	107	107	107
108	108	108	108	108	108	108	108
109	109	109	109	109	109	109	109
110	110	110	110	110	110	110	110
111	111	111	111	111	111	111	111
112	112	112	112	112	112	112	112
113	113	113	113	113	113	113	113
114	114	114	114	114	114	114	114
115	115	115	115	115	115	115	115
116	116	116	116	116	116	116	116
117	117	117	117	117	117	117	117
118	118	118	118	118	118	118	118
119	119	119	119	119	119	119	119
120	120	120	120	120	120	120	120
121	121	121	121	121	121	121	121
122	122	122	122	122	122	122	122
123	123	123	123	123	123	123	123
124	124	124	124	124	124	124	124
125	125	125	125	125	125	125	125
126	126	126	126	126	126	126	126
127	127	127	127	127	127	127	127
128	128	128	128	128	128	128	128
129	129	129	129	129	129	129	129
130	130	130	130	130	130	130	130
131	131	131	131	131	131	131	131
132	132	132	132	132	132	132	132
133	133	133	133	133	133	133	133
134	134	134	134	134	134	134	134
135	135	135	135	135	135	135	135
136	136	136	136	136	136	136	136
137	137	137	137	137	137	137	137
138	138	138	138	138	138	138	138
139	139	139	139	139	139	139	139
140	140	140	140	140	140	140	140
141	141	141	141	141	141	141	141
142	142	142	142	142	142	142	142
143	143	143	143	143	143	143	143
144	144	144	144	144	144	144	144
145	145	145	145	145	145	145	145
146	146	146	146	146	146	146	146
147	147	147	147	147	147	147	147
148	148	148	148	148	148	148	148
149	149	149	149	149	149	149	149
150	150	150	150	150	150	150	150
151	151	151	151	151	151	151	151
152	152	152	152	152	152	152	152
153	153	153	153	153	153	153	153
154	154	154	154	154	154	154	154
155	155	155	155	155	155	155	155
156	156	156	156	156	156	156	156
157	157	157	157	157	157	157	157
158	158	158	158	158	158	158	158
159	159	159	159	159	159	159	159
160	160	160	160	160	160	160	160
161	161	161	161	161	161	161	161
162	162	162	162	162	162	162	162
163	163	163	163	163	163	163	163
164	164	164	164	164	164	164	164
165	165	165	165	165	165	165	165
166	166	166	166	166	166	166	166
167	167	167	167	167	167	167	167
168	168	168	168	168	168	168	168
169	169	169	169	169	169	169	169
170	170	170	170	170	170	170	170
171	171	171	171	171	171	171	171
172	172	172	172	172	172	172	172
173	173	173	173	173	173	173	173
174	174	174	174	174	174	174	174
175	175	175	175	175	175	175	175
176	176	176	176	176	176	176	176
177	177	177	177	177	177	177	177
178	178	178	178	178	178	178	178
179	179	179	179	179	179	179	179
180	180	180	180	180	180	180	180
181	181	181	181	181	181	181	181
182	182	182	182	182	182	182	182
183	183	183	183	183	183	183	183
184	184	184	184	184	184	184	184
185	185	185	185	185	185	185	185
186	186	186	186	186	186	186	186
187	187	187	187	187	187	187	187
188	188	188	188	188	188	188	188
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191	191	191	191	191	191	191	191
192	192	192	192	192	192	192	192
193	193	193	193	193	193	193	193
194	194	194	194	194	194	194	194
195	195	195	195	195	195	195	195
196	196	196	196	196	196	196	196
197	197	197	197	197	197	197	197
198	198	198	198	198	198	198	198
199	199	199	199	199	199	199	199

[illegible]

[illegible]

TABLE 11 - BUILDING SITE DEVELOPMENT (Continued)




















Map symbol and description	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Small lots	Lawns and athletic fields
11.1 Hillier	 slope	 slope	 slope	 slope	severe slope	severe slope
11.2 Rearmy	 to rock	Moderate slope depth to rock	Severe slope depth to rock	Severe slope	Moderate slope depth to rock	Severe slope depth to rock
11.3 J.A.	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.4 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.5 Hilly	severe slope depth to rock	Moderate slope	Severe slope	Severe slope	Moderate slope depth to rock	Severe slope depth to rock
11.6 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.7 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.8 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.9 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.10 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.11 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.12 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.13 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.14 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.15 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.16 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope
11.17 Hilly	 to rock	Moderate slope	Moderate slope	Severe slope	Moderate slope	Moderate slope

TABLE 11 BUILDING SIZE DEVELOPMENT Continued

[illegible]

[illegible][illegible]

APPENDIX BUILDING SITE DEVELOPMENT Continued

Map sheet and name	Soil series	Vegetation	Dwellings with basement	Small commercial buildings	Local roads and streets	Lawns and landscaping
1.						
2.						
3.						
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TABLE 11. EROSION SITE EVALUATION (continued)

Map symbol and soil name	Severe excavations	Severe without additions	Severe with additions	Severe commercial additions	Severe and streets	Severe and landscaping
327 con Rappgood + + + + +	Severe slope	Severe slope	Severe slope	Severe slope	Severe slope	Severe; small stones, slope
328 Rappgood	depth to rock	depth to rock	depth to rock	slope depth to rock	depth to rock	depth to rock
Farpoint	Severe rutbanks cave slope	Severe slope	Severe slope	Severe slope	Severe slope	Severe; small stones slope
329 Rappgood	depth to rock	depth to rock	slope	depth to rock	slope	depth to rock
330 Rappgood	depth to rock	depth to rock	depth to rock	depth to rock	depth to rock	slope
Westbottle	depth to rock	depth to rock	depth to rock	depth to rock	depth to rock	depth to rock
Rock Outcrop						
331 Westbottle	depth to rock	slope	depth to rock	Severe slope	Severe slope	Severe small stones slope
Asbise	depth to rock	depth to rock	depth to rock	Severe slope	Severe low strength, slope	Severe slope
332 Rappgood	depth to rock	depth to rock	depth to rock	Severe slope	Severe slope	Severe; small stones, slope
333 Rappgood	depth to rock	depth to rock	depth to rock	Severe slope depth to rock	Severe depth to rock, slope	Severe small stones slope depth to rock
334 Rappgood	depth to rock	depth to rock	depth to rock	Severe slope	Severe slope	Severe small stones slope
335 Rappgood	depth to rock	depth to rock	depth to rock	Severe slope	Severe depth to rock slope	Severe small stones slope depth to rock

Continued

[illegible]

[illegible]

TABLE 12 - SANITARY FACILITIES - Continued

Map symbol and soil name	Depth to rock and depth to fields	Seepage and seepage	Seepage and landfill	Area and landfill	Daily cover for and landfill
1110 Indian Creek--	Severe cemented pan perce slowly	Severe seepage cemented pan slope	Severe cemented pan	Moderate slope	Poor cemented pan seepage hard to pack
1115 Pufferan--	Severe cemented pan	Severe cemented pan slope	Severe cemented pan	Moderate slope	Poor cemented pan seepage hard to pack
1120 Offutt	Severe cemented pan seepage	Severe cemented pan seepage	Severe cemented pan seepage	Moderate slope	Poor cemented pan seepage hard to pack
1125 Herman--	Severe perce slowly	Slight	Severe seepage	Slight	Good
1130 McConnell--	Severe pan filter	Severe seepage	Severe too sandy	Moderate flooded	Poor seepage seepage
1135 McConnell--	Severe seepage	Severe seepage	Severe seepage	Moderate slope	Poor seepage seepage
1140 McConnell--	Severe depth to rock cemented pan perce slowly	Severe depth to rock cemented pan	Severe depth to rock cemented pan	Moderate slope	Poor depth to rock cemented pan hard to pack
1145 Avila	Severe depth to rock	Severe depth to rock	Severe depth to rock	Moderate slope	Poor depth to rock small stones
1150 Turner	Severe depth to rock perce slowly	Severe depth to rock	Severe depth to rock	Moderate slope	Poor depth to rock hard to pack
1155 Saughe	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope	Moderate slope	Poor depth to rock small stones slope
1160 Rock Outcrop					
1165 Saughe	Severe depth to rock slope	Severe depth to rock, slope	Severe depth to rock, slope	Severe slope	Poor depth to rock small stones slope
1170 Rock Outcrop					

Map number and section	Topsoil description fields	Vegetation grass	Sanitary landfill	Area sanitary landfill	Soil cover grit
NA = 10	depth to rock, slope	depth to rock, slope	depth to rock, too clayey	depth to rock, slope	depth to rock, too clayey
1160	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
Buckhorn-----	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, small stones
Rock Outcrop					
1187	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, small stones
Nitpad-----	Severe: depth to rock, slope	Severe: depth to rock, cemented pan	Severe: depth to rock, too clayey	Severe: depth to rock, cemented pan	Poor: depth to rock, too clayey, hard to pack
1190	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
Runoff	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, too clayey	Moderate: slope	Poor: depth to rock, too clayey, hard to pack
1191	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
Ashcamp	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
1193	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack

TABLE 1. SANITARY PANS FIELD T-0002

Map symbol and soil name	Depth to rock about 10 feet	Severe depth to rock about 10 feet	Severe depth to rock about 10 feet	Severe depth to rock about 10 feet	Severe depth to rock about 10 feet
Lavaca	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope too clayey	Severe depth to rock, slope	Poor depth to rock, slope, hard to pack
Madeline	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope too clayey	Severe depth to rock, slope	Poor depth to rock, slope, hard to pack
Minimie	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope too clayey	Severe depth to rock, slope	Poor depth to rock, slope, too clayey hard to pack
1171 Lavaca	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope too clayey	Severe depth to rock, slope	Poor depth to rock, slope, hard to pack
Nitpad	Severe depth to rock, cemented pan, pans slowly	Severe depth to rock, cemented pan, slope	Severe depth to rock, too clayey	Severe depth to rock, cemented pan	Poor depth to rock, too clayey, hard to pack
Shade	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope	Severe slope	Poor depth to rock, small stones slope
1172 Lavaca	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope too clayey	Severe depth to rock, slope	Poor depth to rock, slope, hard to pack
Shade	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope	Severe slope	Poor depth to rock, small stones slope
1173 Lavaca	Severe cemented pan pans slowly	Severe cemented pan	Severe depth to rock	Slight	Poor cemented pan, hard to pack
1174 Lavaca	Severe depth to rock, pans slowly	Severe depth to rock, slope	Severe depth to rock, slope	Slight	Poor depth to rock, hard to pack
1175 Lavaca	Severe depth to rock	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope	Poor depth to rock, too clayey hard to pack
Kario	Severe depth to rock, pans slowly	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope	Poor depth to rock, too clayey hard to pack

“**大品、要**” “**入行**” “**入道**” “**思入**” “**三三**” “**三**” “**三山**”

Map symbol and site name	Depth to rock fields	Severe slope depth to rock	Moderate slope depth to rock	Moderate slope	Poor hard to pack
221 Schump	Severe depth to rock	Severe depth to rock	Moderate slope depth to rock	Moderate slope	Poor hard to pack
4 Hug	Severe peaks slowly	Moderate slope	Severe depth to rock	Slight	Good
Nature	Slight	Severe depth to rock	Severe depth to rock	Slight	Poor hard to pack
226 Chim	Severe depth to rock, peaks slowly	Severe depth to rock slope	Severe depth to rock	Moderate slope	Poor hard to pack
4 Frey	Severe depth to rock	Severe depth to rock	Severe depth to rock	Slight	Poor hard to pack
Hillman	Severe depth to rock	Severe depth to rock slope	Severe depth to rock	Moderate slope	Poor hard to pack
Marl Camp	Severe depth to rock	Severe depth to rock slope	Severe depth to rock	Moderate slope	Poor depth to rock small stones
4 Acorn	Severe depth to rock,	Severe depth to rock, slope	Severe depth to rock, slope	Severe slope	Poor depth to rock slope
Obad	Severe depth to rock	Severe depth to rock slope	Severe depth to rock, slope	Severe slope	Poor depth to rock small slopes, slope
Fennel	Severe depth to rock, slope	Severe depth to rock slope	Severe depth to rock slope	Severe slope	Poor depth to rock small stones slope
450 Ashes	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope	Poor depth to rock, slope
Ashes	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope	Severe depth to rock, slope	Poor depth to rock, slope
Deadbutte	Moderate depth to rock, peaks slowly	Severe slope	Severe depth to rock	Moderate depth to rock, slope	Poor small stones

TABLE 11. SANITARY FACILITIES (Continued)

Map section and or name	Soil type & absorption fields	Severe erosion areas	Moderate erosion areas	Absent erosion areas	Roadside ditch / river bank
1258 cont. Dietrich camp.	severe depth to rock, slope	severe depth to rock, slope	moderate depth to rock, slope	depth to rock, slope	depth to rock near stream small stones
Hagwood - road	severe slope	severe slope	severe slope	severe slope	Poor small stones slope
1260 Pikeaster	severe slope	severe slope	severe slope large stones	severe slope	Poor small stones slope
Red	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Blue	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Green	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Yellow	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Brown	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Black	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Grey	severe slope	severe slope	moderate slope	moderate slope	moderate slope
White	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Blue	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Blue	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Orange	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Purple	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Pink	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Green	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Green	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Yellow	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Yellow	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Brown	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Brown	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Grey	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Grey	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light White	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark White	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Black	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Black	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Red	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Red	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Orange	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Orange	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Purple	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Purple	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Pink	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Pink	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Light Green	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Light Green	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Dark Green	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Dark Green	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Light Yellow	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Light Yellow	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Dark Yellow	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Dark Yellow	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Light Brown	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Light Brown	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Dark Brown	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Dark Brown	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Light Grey	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Light Grey	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Dark Grey	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Dark Grey	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Light White	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Light White	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Dark White	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Dark White	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Light Black	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Light Black	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Light Dark Black	severe slope	severe slope	moderate slope	moderate slope	moderate slope
Dark Dark Black	severe slope	severe slope	moderate slope	moderate slope	moderate slope

+ALB 14 SURVEY FR 44-45 Continued

Map # and name	at absorption fields	average slope	sanitary landfill	sanitary landfill	Fairly good for sand
1440 Fulstone - ----	Severe cemented pan	Severe seepage cemented pan slope	Severe cemented pan, too sandy	Moderate slope	Poor cemented pan, seepage too sandy
No. 1	Severe cemented pan, hard to pack	Severe cemented pan, slope	Severe cemented pan	Moderate slope	Poor cemented pan hard to pack
Buffington - ----	Severe cemented pan	Severe cemented pan, slope	Severe cemented pan	Moderate slope	Poor cemented pan, hard to pack
1 Tadpole	Severe cemented pan	Severe cemented pan slope	Moderate cemented pan, slope	Moderate slope	Severe cemented pan, slope
1 Sage	Severe cemented pan, depth to rock	Severe cemented pan, slope	Severe cemented pan, slope	Moderate slope	Severe cemented pan, slope
1 Kodak	Severe cemented pan, depth to rock	Severe cemented pan, slope	Severe cemented pan, slope	Moderate slope	Severe cemented pan, slope
1 Fowler	Severe cemented pan	Severe cemented pan, slope	Severe cemented pan, slope	Moderate slope	Severe cemented pan, slope
14 Trinidad	Severe cemented pan	Severe cemented pan, slope	Severe cemented pan, slope	Moderate slope	Severe cemented pan, slope
Harlan	Severe cemented pan	Severe cemented pan, slope	Severe cemented pan, slope	Moderate slope	Severe cemented pan, slope
1450 Image	Severe cemented pan	Severe cemented pan, slope	Severe cemented pan, slope	Moderate slope	Severe cemented pan, slope
Watuit	Severe cemented pan	Severe cemented pan, slope	Severe cemented pan, slope	Moderate slope	Severe cemented pan, slope
1460 Weedwood	Severe cemented pan	Severe cemented pan, slope	Severe cemented pan, slope	Moderate slope	Severe cemented pan, slope

TABLE 12 SANITARY FACILITIES Continued

Map symbol and description	Symbol	Sewage lagoons pools	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
4 N. 100 ft. x 100 ft.	=====	Severe depth to rock, slope	Severe depth to rock too clayey	Severe depth to rock	Poor depth to rock very bad 10 ft.
1 N. 100 ft. x 100 ft.	=====	=====	=====	=====	Poor =====
1402 Rock Outcrop	=====	=====	=====	=====	=====
1403 Mobile Land	=====	=====	=====	=====	=====

[illegible]

Map symbol and soil name	Headfill	Sand	Gravel	Topsoil
4055 (cont.) Hagood -----	Poor depth to rock thin layer, slope	Improbable excess fines	Improbable excess fines	Poor small stones area reclaim slope
H ₁ amp	Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones slope
H ₂ H ₃ amp	depth to rock			
C ₁ amp	Poor depth to rock	Improbable excess fines	Improbable excess fines	small stones
H ₄ amp				
H ₅ amp				
C ₂ amp				
H ₆ amp				
C ₃ amp				
H ₇ amp				
C ₄ amp				
H ₈ amp				
C ₅ amp				
H ₉ amp				
C ₆ amp				
H ₁₀ amp				
C ₇ amp				
H ₁₁ amp				
C ₈ amp				
H ₁₂ amp				
C ₉ amp				
H ₁₃ amp				
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TABLE 12. COMPARISON OF SOIL TYPES. Continued






































Map symbol and name	Roadfill	Sand	Gravel	Topsoil
	Good	Improbable excess fines	Improbable excess fines	Poor small stones area rec. 2.0
	Poor depth to rock low strength	Improbable excess fines		
Rock Outcrop				
	depth to rock slope			
				
			Improbable excess fines	
	Poor depth to rock shrink swell low strength			
	Poor large stones slope			
	Poor depth to rock shrink swell			
Verdugo	Poor depth to rock shrink swell low strength			Poor layer area rec. 2.0
	Poor depth to rock slope			
Mohave	Poor depth to rock shrink swell low strength			Poor area rec. 2.0 small stones

TABLE 13. CONSTRUCTION FOR EXHALE Continued

Map sheet and name	Roadfill	Sand	Gravel	Topsoil
45 Frank	Poor depth to rock, low strength	Improbable excess fines	Improbable excess fines	Poor A-4 SMA 5-1-100
46 A-4	Poor cemented pan	Probable	Probable	Poor SMA 5-1-100 SMA 5-1-100 SMA 5-1-100
47 Hart	Poor cemented pan SMA 5-1-100 low strength	Probable	Probable	Poor SMA 5-1-100 SMA 5-1-100 SMA 5-1-100
48 Jeffrey	Poor cemented pan	Probable	Probable	Poor SMA 5-1-100 SMA 5-1-100 SMA 5-1-100
49 Hanna	Poor low strength	Probable	Probable	Poor SMA 5-1-100 SMA 5-1-100 SMA 5-1-100
1120 McConnell.....	Good	Probable	Probable	Poor SMA 5-1-100 SMA 5-1-100 SMA 5-1-100
1131 McConnell.....	Good	Probable	Probable	Poor too sandy SMA 5-1-100 SMA 5-1-100
1128 Halyart.....	Poor depth to rock SMA 5-1-100 low strength	Improbable excess fines	Improbable excess fines	Poor too clayey SMA 5-1-100 SMA 5-1-100
1129 A-4	Poor SMA 5-1-100 SMA 5-1-100	Probable	Probable	Poor depth to rock too clayey small stones
1130 Tomlinson	Poor SMA 5-1-100 SMA 5-1-100	Probable	Probable	Poor too clayey
1110 Saugha	Poor depth to rock	Probable	Probable	Poor depth to rock small stones slope
Rock Outcrop				

TABLE 13. CONSTRUCTION MATERIALS—Continued

Map symbol and soil name	Moundfill	Sand	Gravel	Topsail
▲71 (con) : Indian Creek--- Poor: connected pan	Probable	Probable	 non red pan can sink no area of all	
1172. Devada --- -- Poor: 	Improbable 	Improbable 	Poor depth to rock too clayey small stones	
Madeline----- Poor: depth to rock shrink swell, low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock 	
Ninamile----- - Poor: depth to rock or shrink swell, low strength				
Poor: depth to rock, shrink swell, low strength				
Nitpac----- - Poor: depth to rock, shrink swell, low strength	Improbable excess fines	Improbable excess fines	Poor too clayey, small stones	
Poor: depth to rock				
Unneds Poor: depth to rock shrink swell, w s + i	Improbable excess fines	Improbable excess fines	Poor depth TO R 	
Uhaldi----- - Poor: depth to rock	Improbable excess fines	Improbable excess fines		
Re Poor: shrink swell, low strength				
Tunniop----- - Poor: depth to rock, shrink swell, low strength	Improbable excess fines	Improbable excess fines	Poor too clayey	
▲180 N. namile	Improbable: excess fines	Improbable excess fines	Poor depth to rock, too clayey large stones	

TABLE 13. CONTINUED. SOIL MATERIALS. Continued

Map symbol and soil name	Headfall	Sand	Gravel	Topsoil
1180 (cont) FATIGUE + + + + +	Poor depth to rock shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor too clayey
1181 Ninamile + + + + +	Poor depth to rock shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock too clayey large stones
Madeline + + + + +	Poor depth to rock, shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock too clayey small stones
Tinpan + + + + +	Poor depth to rock, shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor too clayey
1182 Ninamile + + +	Poor depth to rock shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock too clayey large stones
Westbutter + + +	Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock too clayey large stones
1183 Ninamile + + +	Poor depth to rock shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock too clayey large stones
Westbutter + + + + +	Poor depth to rock, slope	Improbable excess fines	Improbable excess fines	Poor depth to rock too clayey large stones
1184 Ninamile + + + + +	Poor depth to rock, shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock too clayey large stones
Tinpan + + + + +	Poor depth to rock shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor too clayey
1185 Ninamile + + + + +	Poor depth to rock, shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock, too clayey large stones
East Camp	Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock, small stones slope

TABLE 13. CONSTRUCTION MATERIALS (Continued)





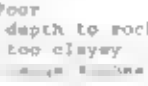
























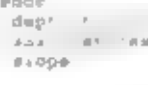

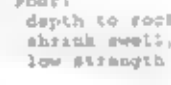
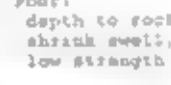




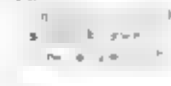




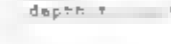




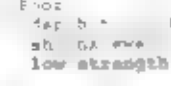


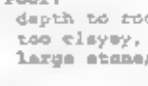




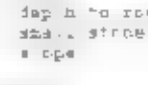





Map symbol and spot name	Bedfill	Sand	Gravel	Topsoil
 Hh Hamm 		 Improbable excess fines	 Improbable excess fines	 Poor depth to rock, too clayey small stones
 Tinpan	 Poor depth to rock, shrink swell low strength	 Improbable excess fines	 Improbable excess fines	 too clayey
 Orphan	 Poor depth to rock, shrink swell low strength	 Improbable excess fines	 Improbable excess fines	 Poor depth to rock, too clayey small stones
 H Hamm 		 excess fines	 excess fines	 depth to rock too clayey small stones
 Tinpan	 Poor depth to rock, shrink swell low strength	 Improbable excess fines	 Improbable excess fines	 Poor too clayey
 Hart Camp	 Poor depth to rock	 Improbable excess fines	 Improbable excess fines	 Poor depth to rock too clayey slope
 Hh Hamm 	 Poor depth to rock, shrink swell, low strength	 Improbable excess fines	 Improbable excess fines	 Poor depth to rock too clayey large stones
 Newlands				
 Hawk Camp	 depth to rock			 depth to rock small stones slope
 Benthine	 Poor depth to rock shrink swell low strength	 Improbable excess fines	 Improbable excess fines	 Poor depth to rock too clayey, large stones
 Badger Camp	 Poor depth to rock	 small stones	 thin layer	 Poor depth to rock small stones slope
 Orphan	 Poor depth to rock shrink swell low strength	 excess fines	 excess fines	 Poor depth to rock too clayey small stones

TABLE 17. CLASSIFICATION OF MATERIALS From above


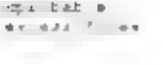


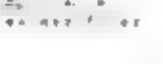


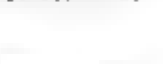




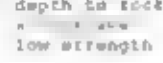




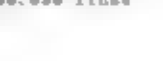

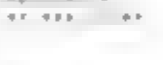


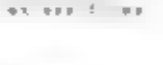
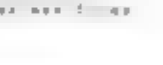
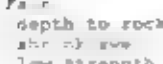


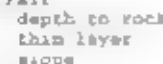
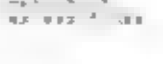
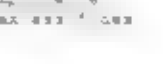


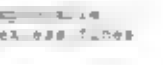















Map symbol and soil name	Red	Sand	Gravel	Topsoil
1251 (old) Ashtray				FOOT small stones
1252 Ashtray				FOOT small stones
1253 Ashtray				FOOT small stones
1254 Ashtray				FOOT small stones
1255 Newlands				FOOT small stones
1256 Newlands				FOOT small stones
1257 Newlands				FOOT small stones
1258 Newlands				FOOT small stones
1259 Newlands				FOOT small stones
1260 Newlands				FOOT small stones
1261 Newlands				FOOT small stones
1262 Newlands				FOOT small stones
1263 Newlands				FOOT small stones
1264 Newlands				FOOT small stones
1265 Newlands				FOOT small stones
1266 Newlands				FOOT small stones

TABLE 13. CONCENTRATION OF MA TERIALS Cont. med.[illegible]

TABLE 1. CONTINUED

Map symbol and soil name	Soilfill	Sand	Gravel	Topsoil
176 Raywet -++ +++++ Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock etc = etc slope	
1327 Raywet ++++++ Poor; depth to rock	Improbable; excess fines	Improbable excess fines	Poor depth to rock, small stones	
WestButte ++++ Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock, small stones	
Kapood..... Fair depth to rock thin layer slope	Improbable excess fines	Improbable excess fines	Poor depth to rock, small stones	
178 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
179 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
180 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
181 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
182 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
183 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
184 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
185 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
186 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
187 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
188 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
189 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
190 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
191 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
192 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
193 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
194 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
195 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
196 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
197 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
198 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
199 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	
200 Raywet - Poor depth to rock	Improbable excess fines	Improbable excess fines	Poor depth to rock small stones	

TABLE 13. CORRELATION MATRICES (continued)

Map symbol and soil name	Roots	Sand	Gravel	Topsoil
4 dry soil	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock and stones slope
Mapgood - - - -	Fair: depth to rock thin layer, slope	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock and stones slope
4 dry soil	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock small stones slope
dry soil	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones slope
Mapgood - - - -	Fair: depth to rock thin layer, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones and red clay slope
1345 Badgercamp - - - -	Poor: depth to rock	Improbable: small stones	Improbable: thin layer	Poor: depth to rock small stones slope
dry soil - - - -	Fair: depth to rock slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones and red clay slope
Mapgood - - - -	Fair: depth to rock thin layer, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones and red clay slope
46 Badgercamp - - - -	Poor: depth to rock, slope	Improbable: small stones	Improbable: thin layer	Poor: depth to rock small stones slope
Mapgood	Fair: depth to rock slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones and red clay slope
Mapgood - - - - -	Poor: slope	Improbable: thin layer	Improbable: thin layer	Poor: small stones and red clay slope
1352 Badgercamp	Poor: depth to rock	Improbable: small stones	Improbable: thin layer	Poor: depth to rock small stones slope

$\Delta E_{\text{eff}} = E_{\text{eff}} - E_{\text{eff}}^{\text{ref}}$

Map symbol and soil name	Readfill	Sand	Gravel	Topsail
+168 Oak & deckwood	Fair shrink swell low strength	Probable: excess fines	Excessive: excess fines	Probable: depth to rock, too clayey small stones
+180 Wm	Poor: depth to rock	Probable: excess fines	Excessive: excess fines	Probable: depth to rock
+181 Wm	Poor: washed	Improbable: excess fines	Excessive: excess fines	Probable: depth to rock
Wm	Poor: shrink swell low strength	Probable: excess fines	Excessive: excess fines	Probable: depth to rock
+165 M blue sand +	Poor: slope	Probable: excess fines	Excessive: excess fines	Probable: depth to rock
Dog, m + + + +	Poor: slope	Probable: excess fines	Excessive: excess fines	Probable: depth to rock
L.S. M.B.M.	Poor: slope	Probable: excess fines	Excessive: excess fines	Probable: depth to rock
M.B.M.	Poor: slope	Probable: excess fines	Excessive: excess fines	Probable: depth to rock
Field ex	Poor: depth to rock, shrink swell, large stones	Improbable: excess fines	Improbable: excess fines	Probable: depth to rock, too clayey small stones
Road w. wash	Poor: large stones slope	Improbable: small stones, large stones	Improbable: large stones	Probable: depth to rock, too clayey small stones
+175 Cotant + + + + +	Poor: depth to rock, shrink swell, low strength	Improbable: excess fines	Improbable: excess fines	Probable: depth to rock, too clayey small stones
Madeiras	Poor: depth to rock, shrink swell, low strength	Improbable: excess fines	Improbable: excess fines	Probable: depth to rock, too clayey small stones

TABLE 11. CONSTRUCTION MATERIALS. Continued







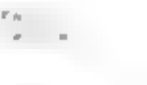
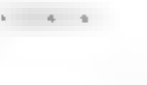
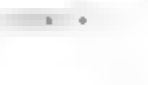











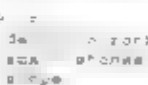




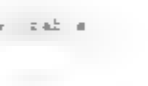
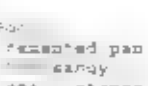



Map symbol and soil name	Soilfill	Sand	Gravel	Topsoil
h No. 100				
Shoulder Lake--	Poor shrink swell, low strength	Improbable excess fines	Improbable excess fines	Poor too clayey, wetness
18b Vapourpoint: -----	Fair slope	Probable	Probable	Poor too sandy run, stones
18b Off	Good	Improbable excess fines		
18b On				
18b Partial				
18b No. 100	Poor depth to rock shrink swell,			
18b No. 100	Poor cemented pan	Probable	Probable	
18b No. 100	Poor depth to rock			
18b Tuffa	Poor depth to rock slope			
18b Pulstone	Poor cemented pan			
18b Wet spring	Poor cemented pan shrink swell, low strength			

TABLE 15. CONSTRUCTION MATERIALS -Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1412 (con 1): buff s	Poor shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor cemented m. too clayey small stones
1427: Kangaroo - - - - - Poor	thin layer	Improbable excess fines	Improbable excess fines	Poor cemented s too clayey
41: clay s	Poor depth to rock shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock shrink swell low strength
1437: s	Poor depth to rock shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock shrink swell low strength
41: Pomona	Poor shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor shrink swell low strength
1440: Low, low	Poor shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor shrink swell low strength
1445: clay s	Poor depth to rock shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock shrink swell low strength
1445: clay s	Poor depth to rock shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock shrink swell low strength
1450: Kangaroo	Fair shrink swell	Improbable excess fines	Improbable excess fines	Poor shrink swell low strength
Webb	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor wetness
1450: Wedwood	Fair: shrink-swell	Improbable excess fines	Improbable excess fines	Fair: too sandy too clayey small stones
1470: Ninemile	Poor depth to rock shrink swell low strength	Improbable excess fines	Improbable excess fines	Poor depth to rock clayey large stones

TABLE 13. CONTINUED. MATERIALS OBSERVED

Map sheet and map name	Scale	Area	Area	Area
1901 Rock Outcrop	1:10,000 1:10,000 1:10,000 1:10,000	1:10,000 1:10,000 1:10,000 1:10,000	1:10,000 1:10,000 1:10,000 1:10,000	1:10,000 1:10,000 1:10,000 1:10,000
1902 Bubble land	1:10,000 1:10,000 1:10,000 1:10,000	1:10,000 1:10,000 1:10,000 1:10,000	1:10,000 1:10,000 1:10,000 1:10,000	1:10,000 1:10,000 1:10,000 1:10,000

AB-3 14 RA-27 MURKIN-EMENT Cont. added

[illegible]

AE 5 4 12-13 1944-1945 Continued

[illegible]

A-1-1 WATER MANA-1-1-1 Continued

Map Number and Name	Soils			Aquifer Fed excavated ponds	Features affecting		
	Soil Series	Soil Series	Soil Series		Drainage	Irrigation	Terraces and diversions
1162 (unn.)	1162 A N depth to rock pan	1162 A N hard to pack	1162 A N no water	1162 A N	1162 A N	1162 A N perce slowly depth to rock	1162 A N depth to rock cemented pan
1163 Nevada	Severe: depth to rock	Severe thin layer	Severe no water	Deep to water	Slope large stones	Slope large stones depth to rock	
Deased	Severe slope	Severe thin layer	Severe no water	Deep to water	Slope perce slowly, depth to rock	Slope depth to rock erodes pan	
1164 Nevada	Severe: depth to rock, slope	Severe thin layer	Severe no water	Deep to water	1164 perce slowly	1164 depth to rock	
1165 Nevada	Severe depth to rock slope	Severe thin layer	Severe no water	Deep to water	Slope depth to rock	1165 depth to rock	
1166 Nevada	1166 depth to rock	Severe thin layer	Severe no water	Deep to water	Slope large stones, depth to rock	Slope large stones depth to rock	
1167 Nevada	Severe slope	Severe thin layer	Severe, no water	Deep to water	1167 depth to rock	1167 depth to rock	
1168 Nevada	Severe depth to rock, slope	Severe, thin layer	Severe no water	Deep to water	1168 depth to rock	1168 depth to rock	
1169 Nevada	Severe: depth to rock slope	Severe thin layer	Severe no water	Deep to water	1169 depth to rock	1169 depth to rock	
1170 Nevada	Severe: cemented pan slope	Severe deepage	Severe no water	Deep to water	1170 depth to rock	1170 cemented pan perce slowly	
1171 Nevada	1171 depth to rock, slope	Severe, thin layer	Severe, no water	Deep to water	1171 depth to rock	1171 depth to rock	
1172 Nevada	Severe depth to rock, slope	Severe, thin layer	Severe, no water	Deep to water	1172 depth to rock	1172 depth to rock	
1173 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1173 depth to rock	1173 depth to rock	
1174 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1174 depth to rock	1174 depth to rock	
1175 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1175 depth to rock	1175 depth to rock	
1176 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1176 depth to rock	1176 depth to rock	
1177 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1177 depth to rock	1177 depth to rock	
1178 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1178 depth to rock	1178 depth to rock	
1179 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1179 depth to rock	1179 depth to rock	
1180 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1180 depth to rock	1180 depth to rock	
1181 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1181 depth to rock	1181 depth to rock	
1182 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1182 depth to rock	1182 depth to rock	
1183 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1183 depth to rock	1183 depth to rock	
1184 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1184 depth to rock	1184 depth to rock	
1185 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1185 depth to rock	1185 depth to rock	
1186 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1186 depth to rock	1186 depth to rock	
1187 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1187 depth to rock	1187 depth to rock	
1188 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1188 depth to rock	1188 depth to rock	
1189 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1189 depth to rock	1189 depth to rock	
1190 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1190 depth to rock	1190 depth to rock	
1191 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1191 depth to rock	1191 depth to rock	
1192 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1192 depth to rock	1192 depth to rock	
1193 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1193 depth to rock	1193 depth to rock	
1194 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1194 depth to rock	1194 depth to rock	
1195 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1195 depth to rock	1195 depth to rock	
1196 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1196 depth to rock	1196 depth to rock	
1197 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1197 depth to rock	1197 depth to rock	
1198 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1198 depth to rock	1198 depth to rock	
1199 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1199 depth to rock	1199 depth to rock	
1200 Nevada	Severe depth to rock	Severe, thin layer	Severe, no water	Deep to water	1200 depth to rock	1200 depth to rock	

"Ain't I a woman?"

[illegible]

7. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$ 4. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$ 4. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

				Features affecting -		
Any type of dam	Reservoir	Embankments, dikes and levees	Aquifer fed excavated ponds	Drainage	Irrigation	Terraces and diversions
107	107	Severe hard to pass	Severe, no water	Deep to water	Slope, passes slowly, depth to rock	Slope large stones depth to rock
108	108	Severe thin layer	Severe no water	Deep to water	Slope depth to rock	Slope depth to rock
109	109	Severe, depth to rock, this layer	Severe no water	Deep to water	Slope depth to rock	Slope, depth to rock
110	110	Severe no water	Severe no water	Deep to water	Slope droughty fast intake	Slope too sandy soil blowing
111	111	Severe no water	Severe no water	Deep to water	Slope droughty, fast intake	Slope too sandy soil blowing
112	112	Severe depth to rock, this layer	Severe no water	Deep to water	Slope fast intake soil blowing	Slope depth to rock soil blowing
113	113	Severe piping	Severe no water	Deep to water	Slope, soil blowing, fast intake	Too sandy soil blowing
114	114	Severe large stones	Severe no water	Deep to water	Slope large stones fast intake	Slope large stones too sandy
115	115	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
116	116	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
117	117	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
118	118	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
119	119	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
120	120	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
121	121	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
122	122	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
123	123	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
124	124	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
125	125	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
126	126	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
127	127	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
128	128	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
129	129	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
130	130	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
131	131	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
132	132	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
133	133	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
134	134	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
135	135	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
136	136	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
137	137	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
138	138	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
139	139	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
140	140	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
141	141	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
142	142	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
143	143	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
144	144	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
145	145	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
146	146	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
147	147	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
148	148	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
149	149	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing
150	150	Severe	Severe no water	Deep to water	Soil blowing, fast intake	Erodes easily soil blowing

AS-2 4 WA 20 1911-1912

Map sheet No. 1011-1012	Foot print area	Soil		Drainage	Features affecting	
		Entire area of foot print	Area exposed to water		Irrigation	Topography and diversity
1011-1012	Severe slope	Severe thin layer	Severe no water	Deep to water	Slope depth to rock	Slope depth to rock
1011-1012	Severe slope	Severe thin layer	Severe no water	Deep to water	Slope depth to rock	Slope depth to rock
1011-1012	Severe slope	Slight	Severe no water	Deep to water	Slope	Slope
1011-1012	Severe slope	Moderate thin layer	Severe no water	Deep to water	Slope	Slope
1011-1012	Severe depth to rock	Severe thin layer	Severe no water	Deep to water	Slope large stones perce slowly	Slope large stones depth to rock
1011-1012	Severe slope	Moderate thin layer	Severe no water	Deep to water	Slope	Slope
1011-1012	Severe slope	Moderate thin layer	Severe no water	Deep to water	Slope large stones droughty	Slope large stones depth to rock
1011-1012	Severe slope	Moderate thin layer	Severe no water	Deep to water	Slope	Slope
1011-1012	Severe slope	Moderate thin layer	Severe no water	Deep to water	Slope droughty	Slope, large stones
1011-1012	Severe slope	Moderate thin layer	Severe no water	Deep to water	Slope	Slope
1011-1012	Severe slope	Severe no water	Severe no water	Deep to water	Slope droughty, depth to rock	Slope, depth to rock
1011-1012	Severe slope	Slight	Severe no water	Deep to water	Slope	Slope
1011-1012	Severe slope	Severe no water	Severe no water	Deep to water	Slope large stones droughty	Slope large stones depth to rock
1011-1012	Severe slope	Severe large stones	Severe no water	Deep to water	Slope, large stones, droughty	Slope large stones depth to rock

TABLE 14. WATER MANAGEMENT (Continued)

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TABLE 18. *WATER RESOURCES* (continued)

Map symbol		Substrate		Drainage		Irrigation		Sediment	
Symbol	Description	Symbol	Description	Symbol	Description	Symbol	Description	Symbol	Description
1	Deep to water	2	Deep to water	3	Deep to water	4	Slope droughty, depth to rock	5	Slope depth to rock
6	Deep to water	7	Deep to water	8	Deep to water	9	Slope	10	Slope
11	Deep to water	12	Deep to water	13	Deep to water	14	Slope droughty	15	Slope large stones
16	Deep to water	17	Deep to water	18	Deep to water	19	Slope	20	Slope
21	Deep to water	22	Deep to water	23	Deep to water	24	Slope droughty	25	Slope large stones
26	Deep to water	27	Deep to water	28	Deep to water	29	Slope droughty	30	Slope large stones
31	Deep to water	32	Deep to water	33	Deep to water	34	Slope droughty	35	Slope large stones
36	Deep to water	37	Deep to water	38	Deep to water	39	Slope droughty	40	Slope large stones
41	Deep to water	42	Deep to water	43	Deep to water	44	Slope droughty	45	Slope large stones
46	Deep to water	47	Deep to water	48	Deep to water	49	Slope droughty	50	Slope large stones
51	Deep to water	52	Deep to water	53	Deep to water	54	Slope droughty	55	Slope large stones
56	Deep to water	57	Deep to water	58	Deep to water	59	Slope droughty	60	Slope large stones
61	Deep to water	62	Deep to water	63	Deep to water	64	Slope droughty	65	Slope large stones
66	Deep to water	67	Deep to water	68	Deep to water	69	Slope droughty	70	Slope large stones
71	Deep to water	72	Deep to water	73	Deep to water	74	Slope droughty	75	Slope large stones
76	Deep to water	77	Deep to water	78	Deep to water	79	Slope droughty	80	Slope large stones
81	Deep to water	82	Deep to water	83	Deep to water	84	Slope droughty	85	Slope large stones
86	Deep to water	87	Deep to water	88	Deep to water	89	Slope droughty	90	Slope large stones
91	Deep to water	92	Deep to water	93	Deep to water	94	Slope droughty	95	Slope large stones
96	Deep to water	97	Deep to water	98	Deep to water	99	Slope droughty	100	Slope large stones

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TABLE 4. WATER MANAGEMENT

Map symbol and name	Features affecting					
	Pond to area	Shallow ponds	Aquifer fed ponds	Deep to water	Slope large stones perce slowly	Terraces and distances
1410 Hingham	Severe: depth to rock depth	Severe thin layer	Severe no water	Deep to water	Slope large stones perce slowly	Terraces and distances
1401 Playa	Flight	Severe thin layer	Severe: no water	Ponding slow intake	Ponding droughly slow intake	Terraces and distances
1402 Playa	Flight	Severe thin layer	Severe: no water	Ponding slow intake	Ponding droughly slow intake	Terraces and distances
1403 Playa	Flight	Severe thin layer	Severe: no water	Ponding slow intake	Ponding droughly slow intake	Terraces and distances

TABLE 15. ENGINEERING INDEX PROPERTIES Continued

Map symbol and description	Depth	USDA texture	Classification		7 sizes		Percentages, sand, silt, and clay		Liquid limit, %	Plasticity index
			Unified	AASHTO	Coarse	Fine	Sand	Silt and clay		
	AT								Per	
1020 (cont.) Wm. ch. -----	0-5	Loam	CL ML	A-4			0-35	100-65-35	4	25-10
	5-60	Stratified sandy loam to heavy clay loam	CL	A-6	0	4	0-75	100-65-35	5	10-40
1049 Masham --- --	0-4	Fine sandy loam	SM SC SK ML CL MC	A-4	0	0	100	70-35	40-35	15-35
	4-13	Sandy clay	SC CL	A-6 A-7	0	0		10-5	45-75	10-65
	13-60	Very fine sandy loam, silty loam loam	CL ML CL MC	A-4 A-6	0	0	100	100	65-35	35-65
1040 -----	4	Fine sand	M M	A-4			75-5	1-20	1-4	NP
	4-6	Fine sand sand loamy fine sand	M M	A-4			55-5	5-10	1-4	NP
10-5 Ninham, N	0-7	Very cobbly	CL ML	A-4	1-2			1-1	1-1	1-1
	7-19	Clay gravelly clay	CH	A-7	0			1-1	1-1	1-1
	19-21	Unweathered bedrock			0	0	0	0	0	NP
10-6 Ninham, N	4	Very stony loam	SC SC CL	A-4			1-1	1-1	1-1	1-1
	4-6	Sandy clay	SC CL	A-4			1-1	1-1	1-1	1-1
	6-7	Unweathered bedrock	SC CL CH	A-2 A-7	0-3	3-15	60-35	55-30	45-75	30-55
	7-19	Unweathered bedrock			0	0	0	0	0	NP
10-7 Ninham, N	0	Extreme, stony loam	M	A-4	1-2	1-1	1-1	1-1	1-1	1-1
	1-5	Clay loam	CL	A-7	0-2	0-5	80-35	75-35	70-30	55-70
	5-14	Clay	ML CH	A-7	0-2	0-5	30-35	25-35	60-90	65-75
	14-18	Unweathered bedrock			0	0	0	0	0	NP
1016 T. pa.	0	Extreme, stony loam	M	A-4	1-2	1-1	1-1	1-1	1-1	1-1
	1-5	Silty clay loam	CL	A-6	0-5	0-5	80-100	75-100	70-35	65-85
	5-14	Unweathered bedrock			0	0	0	0	0	NP
	14-18	Unweathered bedrock			0	0	0	0	0	NP

TABLE 15 -- DISINTERESTING HOME PROPERTIES Continued

[illegible]

TABLE 15 - ENGINEERING INDEX PROPERTIES -Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit Pat	Plas ticity index	
			Unified	ASTM	>10 inches	3-10 inches	4	10 40 200					
								Pct	Pct				
	0-3	Very stony loam	SM	ML	A-4	5-15	15-25						
Brimley	3-6	Loam, gravelly	CL	ML	CL	0-5	0-10						
	6-9	Loam				0-5	0-10						
	9-12	Loam											
	12-15	Weathered bedrock											
Sinn	0-7	Gravelly loam	OC	CL	A-4								
	7-15	Clay loam	CL		A-4								
	15-25	Loam, gravelly	CL	SC	A-4	0	0						
	25-30	Weathered bedrock				0	0						
1061 Old Camp-----	0-3	Gravelly loam	SC	SM	A-4	0	0-5						
	3-6	Very cobbly	OC		A-2	15-30	25-50						
	6-9	Loam											
	9-12	Clay loam				0	0						
Camp	0-3	Gravelly loam	OC	ML-OC	A-2, A-4	5-5	15-30	40-70	55-65	45-55	10-40	15-25	NP 10
	3-6	Loam	OC		A-2, A-4	15-25	30-35	40-55	55-60	35-45	25-45	10-45	15-25
	6-9	Loam											
	9-12	Clay loam				0	0						
Cerra	0-3	Gravelly loam	CL-ML	ML	A-4	15-30	25-50	5-35	50-60	50-65	10-45	5-10	
	3-6	Loam	CL		A-2	0	0	5-45	45-60	50-60	10-40	0-10	
	6-9	Loam											
	9-12	Weathered bedrock											

"Ab E" ES. 4127 43 NEN 18 77 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045 1046 1047 1048 1049 1050 1051 1052 1053 1054 1055 1056 1057 1058 1059 1060 1061 1062 1063 1064 1065 1066 1067 1068 1069 1070 1071 1072 1073 1074 1075 1076 1077 1

Map symbol and soil name	Depth	USDA texture	Moisture	Temperature	Temperature passing sieve number	Quadrant	Plant
	in		mo	°C	4 10 20 40 60 80 100		
0-2	Gravelly loamy sand	SM	A	A			
2-54	Stratified gravelly sandy loam to gravelly loam	SM	A	A			
54-45	Stratified very sandy loam	SM, CM	A-1	A-2	0 0-15 50 70 35 60 30 40 15-10	15 15	NP 5
0-8	Very stony loam	CL, CL ML, SC SC SM	A 0	A 4	1 35 10 60 70 85 65 60 55 70 40 35	25 15	NP 15
8-12	Gravelly clay loam	CL OC	A 1				
12-24	Gravelly clay, gravelly clay loam	CL, CM OC	A 7		0 0 10 55 75 20 70 45 45 4 0	1 0	
24-28	Unweathered bedrock				0 0 0 0 0 0		NP
0-7	Very stony loam	CL ML, ML	A 4		10 35 15 20 80 90 75 85 65 60 50 40		
7-16	Clay loam, loam sandy clay loam	CL	A-6		0 0 5 80 100 70-85 65-90 50 75	1 4	
16-20	Weathered bedrock				0 0 0 0 0 0		NP
0-8	Very cobbly loam	CL, CL ML, SC SC SM	A-5, A 2		0 15-40 70-85 65 1 55 70 40 35	2 20	
8-12	Gravelly clay loam	CL OC	A-6		0 0-10 70 75 50-70 4 0 40	1 40	
12-24	Gravelly clay, gravelly clay loam	CL, CM, OC	A 7		0 0 0 0 0 0	40 60	NP
24-28	Unweathered bedrock				0 0 0 0 0 0		NP
0-7	Very stony loam	CL-ML, ML, CL	A-4		15-25 25-35 55-100 50 100 80-90 55 40-60	25 15	NP
7-16	Clay loam, loam sandy clay loam	CL	A-6		25-35 40 50 75 90 70-85 65-75 50 65	40 60	NP
16-20	Weathered bedrock						NP

TABLE 2. SOIL PROPERTIES OF THE SURVEYED AREAS

Map symbol and soil name	Depth in	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit Pet	Plastic index
			Unified	AASHTO	>10 inches	>10 inches	4	10	60	200		
					Pct	Pct					Pct	
H. H. H. H.	0-10	Very cobbly loam	CL CL ML SC SC SM	A-1 A			5	5	5	4	5	25 15
	10-20	Gravelly clay loam		A			5	5	5	4	5	40 10
	20-30	Gravelly clay loam		A			5	5	5	4	5	40 10
	30-40	Unweathered bedrock			0	0	0	0	0	0	-	NP
H. H. H. H.	0-10	Fragmental material	GP	A-1	10-15	10-15	0 10	0 5	0 5	0	0 14	NP
	10-20	Very cobbly loam	CL CL ML SC SC SM	A-1 A			5	5	5	4	5	25 15
	20-30	Gravelly clay loam		A			5	5	5	4	5	40 10
	30-40	Unweathered bedrock			0	0	0	0	0	0	-	NP
H. H. H. H.	0-10	Very stony sandy loam	CM	A-2	5 10	10 10	85 100	75-85	10-40	10 10	-	NP
	10-20	Gravelly clay	CM	A-2	0	0 5	75 100	65 75	10 75	10 70	10 85	10 45
	20-30	Weathered bedrock			0	0	0	0	0	0	-	NP
	30-40	Very stony loam	CL ML ML CL	A-2 A-4	10 10	10 10	5 5	5 5	5 5	5 5	5 5	5 10
H. H. H. H.	0-10	Very stony loam	CL ML ML CL	A-2 A-4	10 10	10 10	5 5	5 5	5 5	5 5	5 5	5 10
	10-20	Gravelly clay										
	20-30	Weathered bedrock										NP
	30-40	Very stony loam	CL ML ML CL	A-2 A-4	10 10	10 10	5 5	5 5	5 5	5 5	5 5	5 10
H. H. H. H.	0-10	Very stony loam	CL ML ML CL	A-2 A-4	10 10	10 10	5 5	5 5	5 5	5 5	5 5	5 10
	10-20	Gravelly clay										
	20-30	Weathered bedrock										NP
	30-40	Very stony loam	CL ML ML CL	A-2 A-4	10 10	10 10	5 5	5 5	5 5	5 5	5 5	5 10
H. H. H. H.	0-10	Very stony loam	CL ML ML CL	A-2 A-4	10 10	10 10	5 5	5 5	5 5	5 5	5 5	5 10
	10-20	Gravelly clay										
	20-30	Weathered bedrock										NP
	30-40	Very stony loam	CL ML ML CL	A-2 A-4	10 10	10 10	5 5	5 5	5 5	5 5	5 5	5 10
H. H. H. H.	0-10	Very stony loam	CL ML ML CL	A-2 A-4	10 10	10 10	5 5	5 5	5 5	5 5	5 5	5 10
	10-20	Gravelly clay										
	20-30	Weathered bedrock										NP
	30-40	Very stony loam	CL ML ML CL	A-2 A-4	10 10	10 10	5 5	5 5	5 5	5 5	5 5	5 10

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Map symbol and soil name	Depth	USDA texture	Classification			Fugate		Moisture capacity				Liquid limit	Plastic limit
			Unified	ASHTO		1	2	3	4	5	6		
1110 Indian Creek	0-5	Very stony loam	SC, SC SM	A-2	A-3	A-3	0-5	10-55	70-90	60-85	55-75	30-50	25-35
	5-10	Gravelly clay, loam	CM CL	A-2			0	0-5	80-100	60-90	55-80	50-80	25-40
	10-15	Gravelly loam	CM CL	A-2			0	0	0	0	0	0	NP
	15-20	Gravelly loam	CM CL	A-2			0	0	0	0	0	0	NP
1111 Huffman	0-5	Very stony loam	SC				0	0-5	75-90	60-85	55-75	30-50	25-35
	5-10	Gravelly clay loam	CL SM				0	0-5	75-90	60-85	55-75	30-50	25-35
	10-15	Gravelly clay loam	CL SM				0	0-5	75-90	60-85	55-75	30-50	25-35
	15-20	Gravelly clay loam	CL SM				0	0-5	75-90	60-85	55-75	30-50	25-35
1112 Huffman	0-5	Silt loam	ML SM	A-4			0	0-5	75-90	60-85	55-75	30-50	25-35
	5-10	Silt loam	ML SM	A-4			0	0-5	75-90	60-85	55-75	30-50	25-35
	10-15	Gravelly clay loam	CL SM	A-4			0	0-5	75-90	60-85	55-75	30-50	25-35
	15-20	Gravelly clay loam	CL SM	A-4			0	0-5	75-90	60-85	55-75	30-50	25-35
1113 Huffman	0-5	Very stony loam	SC, SC SM	A-2	A-3	A-3	0-5	10-55	70-90	60-85	55-75	30-50	25-35
	5-10	Gravelly clay loam	CM CL	A-2			0	0-5	80-100	60-90	55-80	50-80	25-40
	10-15	Gravelly clay loam	CM CL	A-2			0	0-5	80-100	60-90	55-80	50-80	25-40
	15-20	Gravelly clay loam	CM CL	A-2			0	0-5	80-100	60-90	55-80	50-80	25-40
1114 McConna	0-5	Very stony sandy loam	SM	A-2	A-3	A-3	0-5	10-55	70-90	60-85	55-75	30-50	25-35
	5-10	Very gravelly sandy loam	SM	A-2	A-3	A-3	0-5	10-55	70-90	60-85	55-75	30-50	25-35
	10-15	Stratified very fine sand to extreme, gravelly loamy sand	GP SM	A-1			0	0-5	80-100	60-90	55-80	50-80	25-40
	15-20	Stratified very fine sand to extreme, gravelly loamy sand	GP SM	A-1			0	0-5	80-100	60-90	55-80	50-80	25-40
1115 McConna	0-5	Gravelly fine sandy loam	CM	A-2	A-3	A-3	0-5	10-55	70-90	60-85	55-75	30-50	25-35
	5-10	Loam, sandy loam, fine sandy loam	ML SM	A-4			0	0	95-100	90-100	85-95	45-60	15-25
	10-15	Stratified very fine sand to extreme, gravelly loamy sand	GP SM	A-1			0	0-5	80-100	60-90	55-80	50-80	25-40
	15-20	Stratified very fine sand to extreme, gravelly loamy sand	GP SM	A-1			0	0-5	80-100	60-90	55-80	50-80	25-40

TABLE 1. Soil Survey of the National Highway System, 1977. Continued.

Map symbol and soil name	Depth in	SEA Name	Unified		ASHTO		Grain size		Percentages passing				Liquid limit	Plastic index
							>10 inches	>10 inches	4	10	60	200		
							Pct	Pct						
H. 1.1.1 H. 1.1.1.1	0-4	Gravelly loam	SC	SC	A-2	A-4	0-1	1-10	60-80	55-75	0-5	4-10	1-15	
	4-8	Gravelly clay	CL	CL	A-4		0-1	1-10	60-80	55-75	0-5	4-10	1-15	
	8-12	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	12-16	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
Jayhawk	0-4	Very cobbly	SC	SC	A-2	A-4	0-1	1-10	60-80	55-75	0-5	4-10	1-15	
	4-8	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	8-12	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	12-16	Unweathered bedrock					0	0	0	0	0	0	---	NP
Pohiohio	0-4	Cobbly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	4-8	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	8-12	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	12-16	Unweathered bedrock					0	0	0	0	0	0	---	NP
H. 1.1.1 H. 1.1.1.1	0-4	Very cobbly	SC	SC	A-2	A-4	0-1	1-10	60-80	55-75	0-5	4-10	1-15	
	4-8	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	8-12	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	12-16	Unweathered bedrock					0	0	0	0	0	0	---	NP
H. 1.1.1 H. 1.1.1.1	0-4	Very cobbly	SC	SC	A-2	A-4	0-1	1-10	60-80	55-75	0-5	4-10	1-15	
	4-8	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	8-12	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	12-16	Unweathered bedrock					0	0	0	0	0	0	---	NP
H. 1.1.1 H. 1.1.1.1	0-4	Very cobbly	SC	SC	A-2	A-4	0-1	1-10	60-80	55-75	0-5	4-10	1-15	
	4-8	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	8-12	Gravelly clay	CL	CL	A-4		0	1-10	60-80	55-75	0-5	4-10	1-15	
	12-16	Unweathered bedrock					0	0	0	0	0	0	---	NP

TABLE 15. *Continued*

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number**						Liquid limit percent	Plasticity index
			CL	CH	>10 mm	10-60 mm	4	10	20	40	60	100		
165 Terra	0-4	Very stony loam	CH	CH	A-2	A-4	0	0	95-100	85-100	70-85	60-80	25-35	5-15
	4-8	Stony clay	CH	CH	A-2	A-4	0	0	95-100	85-100	70-85	60-80	25-35	5-15
	8-14	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	14-18	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	18-24	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	24-30	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	30-36	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	36-42	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	42-48	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	48-54	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	54-60	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	60-66	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	66-72	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	72-78	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	78-84	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	84-90	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	90-96	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	96-102	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	102-108	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	108-114	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	114-120	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	120-126	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	126-132	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	132-138	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	138-144	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	144-150	Gravelly clay loam	SC	CL	OC	A-7	0	0-5	65-100	55-100	40-90	35-70	25-35	5-15
	150-156	Gravelly clay loam												

TABLE 15. ~~SOIL SURVEY OF THE EL PASO DISTRICT, TEXAS~~ Continued

Map symbol and soil name	Depth	USDA texture	Classification			Fragments		Percentage passing sieve number--					Liquid limit percent	Plastic limit percent
			Unified	AASHTO		20 inches	10 inches	4	10	40	200			
							Pct	Pct						
	1m													
1167 con Haystack	0-6	Very stony loam	GM ML 2M OC CL ML	A 3		10-35	5-25	55-85	50-80	40-70	35-55	25-35	5-10	
	6-18	Very gravelly clay loam very gravelly loam very gravelly sandy clay loam	OC	A 2, A 4 A-7		0-9	5-20	40-60	35-55	30-45	25-40	15-50	15-25	
	18-22	Unweathered bedrock				0	0	0	0	0	0	NP		
1168 Devada	0-6	Extremely cobbley loam	GM OC, OC	A 2		0-5	45-55	35-40	20-35	15-30	10-20	25-35	5-10	
	6-17	Gravelly clay, clay	CM OC	A 7		0	0-5	65-100	55-100	50-90	35-70	30-45	25-35	
	17-21	Unweathered bedrock				0	0	0	0	0	0	NP		
1169 Devada	0-6	Very stony loam	GM OC, OC SC SC SM	A 3 A 4, A 6		5-35	15-30	55-75	50-70	40-60	30-45	25-35	5-10	
	6-17	Gravelly clay, clay	CM OC	A 7		0	0-5	65-100	55-100	50-90	35-70	30-45	25-35	
	17-21	Unweathered bedrock				0	0	0	0	0	0	NP		
1170 Devada	0-6	Very cobbley loam	CL CL ML SC SC SM	A 4 A 6		0	5-15	45-55	40-50	30-40	25-35	25-35	5-10	
	6-12	Gravelly clay loam	CL OC	A 6		0	0-5	65-100	55-100	50-90	35-70	30-45	25-35	
	12-14	Gravelly clay loam	CL CM OC	A 7		0	0-5	65-100	55-100	50-90	35-70	30-45	25-35	
	14-20	Unweathered bedrock				0	0	0	0	0	0	NP		
1171 Devada	0-6	Very stony loam	GM OC, OC SC SC SM	A 2, A 4 A-6		5-35	15-30	55-75	50-70	40-60	30-45	25-35	5-10	
	6-17	Gravelly clay, clay	CM OC	A 7		0	0-5	65-100	55-100	50-90	35-70	30-45	25-35	
	17-22	Unweathered bedrock				0	0	0	0	0	0	NP		
Indian Creek	0-6	Very cobbley loam	CL CL ML SC SC SM	A 4 A 6		0	5-15	45-55	40-50	30-40	25-35	25-35	5-10	
	6-18	Gravelly clay clay, sandy clay	CM CL	A 7		0	0-5	65-100	55-100	50-90	35-70	30-45	25-35	
	18-25 25-50	Indurated stratified extremely fine sand coarse sand fine sand fine sand	GM GM GM OC, A-3 A-1 GM			0-5	5-10	35-55	30-55	15-25	5-15	25-30	NP 10	

TABLE 15 ENGINEERING INDEX PROPERTIES Continued

Map symbol and soil name	Depth in	USDA texture	Classification		Fragments		Percentage passing sieve number -				Liquid limit Pet	Plastic index												
			Unified	AASHTO	<10 inches Pct	10-60 inches Pct	4	10	40	200														
1174 Nevada	0-4	Very gravelly loam	GC	A-2	0	0	13	50	10	65	24	40	20	15										
		Clay gravelly loam	GC CM	A							24	45	20	15										
														NP										
1174 Nevada				A							30	35	20	15										
				A							15-45	15	20											
				A																				
1174 Nevada				A							45	65	30	40										
				A																				
				A										NP										
1174 Nevada				A							50	80	20	10										
				A							75	65	35	15										
				A										NP										
1174 Nevada				A							50	70	40	30	10	45								
				A							0	9	45	100	55	100	50	90	35	70	90	65	25	35
				A							0	0	0	0	0								NP	
1174 Nevada				A							45	75	45	65	40	30	4	7	4	7				
				A							0	0	0	0	0								NP	
				A							0	0	0	0	0								NP	
1174 Nevada	0-4	Stony loam	SM CM	A-2	5-15	45	75	50	70	40	50	30	45	25	15	NP	9							
	4-12	Gravelly clay loam	GC SC	A-2	45	85	5	75	45	40	0	5	30	45	25	15								
	12-66	Weathered bedrock															NP							
1174 Nevada	0-6	Very cobbly loam	GC CM GC	A-2	55	75	50	70	40	50	30	45	25	15	5-15									
	6-17	Gravelly clay loam	SC SC-SM	A	45	100	55	100	50	30	35	70	50	65	25	15								
	17-21	Unweathered bedrock	CM GC		0	0	1	0	0	0						NP								

AS 2 7 ENCL. 111. 1000 22 777 8 1000 22 777 8

Map symbol and soil name	Depth in	USDA texture	Unified	SASNET	Percent passing sieve number--					Liquid limit percent	Plastic index	
					1 10		4 10 40 100					
					inches	inches	4	10	40	100		
					Percent	Percent					Percent	
104 (con) Tinpan	0-2	Extremely cobbly loam	GC	A-3 A-6	5-15	50-70	40-55	10-50	25-45	4	10-15	10-15
	2-5	Silty clay loam	CL	A-4	5-15	0-5	40-100	70-100	70-95	8	40-45	10-15
	5-16	Clay	CH	A-7	0	0	100	100	90-100	8	40-45	10-15
	16-46	Unweathered bedrock			0	0	0	0	0			NP
105 Sandy loam	0-2	Extremely cobbly loam	GC ML	A-3 A-6	5-15	50-70	40-55	10-50	25-45	4	10-15	10-15
	2-5	Silty clay loam	CL	A-4	5-15	0-5	40-100	70-100	70-95	8	40-45	10-15
	5-16	Clay	CH	A-7	0	0	100	100	90-100	8	40-45	10-15
	16-46	Unweathered bedrock			0	0	0	0	0			NP
Hart Camp + ...	0-2	Stony loam	ML	A-4 A-6	5-15	5-10	70-90	40-60	40-60	4	10-15	10-15
	2-5	Silty clay loam	CL	A-4	5-15	0-5	40-100	70-100	70-95	8	40-45	10-15
	5-16	Clay	CH	A-7	0	0	100	100	90-100	8	40-45	10-15
	16-46	Unweathered bedrock			0	0	0	0	0			NP
106 Sandy loam	0-2	Very cobbly loam	CL ML	A-4	5-15	50-70	40-55	10-50	25-45	4	10-15	10-15
	2-5	Silty clay loam	CL	A-4	5-15	0-5	40-100	70-100	70-95	8	40-45	10-15
	5-16	Clay	CH	A-7	0	0	100	100	90-100	8	40-45	10-15
	16-46	Unweathered bedrock			0	0	0	0	0			NP
107 Sandy loam	0-2	Extremely cobbly loam	GC	A-3 A-6	5-15	50-70	40-55	10-50	25-45	4	10-15	10-15
	2-5	Silty clay loam	CL	A-4	5-15	0-5	40-100	70-100	70-95	8	40-45	10-15
	5-16	Clay	CH	A-7	0	0	100	100	90-100	8	40-45	10-15
	16-46	Unweathered bedrock			0	0	0	0	0			NP
108 Sandy loam	0-2	Extremely cobbly loam	GC	A-3 A-6	5-15	50-70	40-55	10-50	25-45	4	10-15	10-15
	2-5	Silty clay loam	CL	A-4	5-15	0-5	40-100	70-100	70-95	8	40-45	10-15
	5-16	Clay	CH	A-7	0	0	100	100	90-100	8	40-45	10-15
	16-46	Unweathered bedrock			0	0	0	0	0			NP
109 Sandy loam	0-2	Extremely cobbly loam	GC	A-3 A-6	5-15	50-70	40-55	10-50	25-45	4	10-15	10-15
	2-5	Silty clay loam	CL	A-4	5-15	0-5	40-100	70-100	70-95	8	40-45	10-15
	5-16	Clay	CH	A-7	0	0	100	100	90-100	8	40-45	10-15
	16-46	Unweathered bedrock			0	0	0	0	0			NP
110 Sandy loam	0-2	Extremely cobbly loam	GC	A-3 A-6	5-15	50-70	40-55	10-50	25-45	4	10-15	10-15
	2-5	Silty clay loam	CL	A-4	5-15	0-5	40-100	70-100	70-95	8	40-45	10-15
	5-16	Clay	CH	A-7	0	0	100	100	90-100	8	40-45	10-15
	16-46	Unweathered bedrock			0	0	0	0	0			NP
111 Sandy loam	0-2	Extremely cobbly loam	GC	A-3 A-6	5-15	50-70	40-55	10-50	25-45	4	10-15	10-15
	2-5	Silty clay loam	CL	A-4	5-15	0-5	40-100	70-100	70-95	8	40-45	10-15
	5-16	Clay	CH	A-7	0	0	100	100	90-100	8	40-45	10-15
	16-46	Unweathered bedrock			0	0	0	0	0			NP
Tinpan	0-2	Extremely cobbly loam	GC	A-3 A-6	5-15	50-70	40-55	10-50	25-45	4	10-15	10-15
	2-5	Silty clay loam	CL	A-4	5-15	0-5	40-100	70-100	70-95	8	40-45	10-15
	5-16	Clay	CH	A-7	0	0	100	100	90-100	8	40-45	10-15
	16-46	Unweathered bedrock			0	0	0	0	0			NP

TABLE 15. ENGINEERING INDEX PROPERTIES Continued

Map symbol and soil name	Depth	USDA texture	Unified		ASTM		Fines		Percent passing sieve number -				Liquid limit	Plas- ticity index
			CL	ML	A-1	A-2	No. 20	No. 40	No. 60	No. 100	No. 200			
							inches	inches						
	In						Pct	Pct	4	10	40	100	Pct	
Pavement	0-2	Very gravelly loam	GM		A-2	A-2	0	0	40-60	35-55	25-45	10-10	15-15	NP 10
	2-4	Gravelly loam	ML		A-4	A-4	0	0	95-100	85-100	70-95	40-60	15-15	NP 5
	4-6	Gravelly loam	CL		A-7	A-7	0	0	85-100	75-100	60-85	30-40	15-15	NP 5
	6-8	Gravelly loam	CL		A-7	A-7	0	0	85-100	75-100	60-85	30-40	15-15	NP 5
	8-10	Gravelly loam	CL		A-7	A-7	0	0	85-100	75-100	60-85	30-40	15-15	NP 5
Metpav	0-8	Very cobbly loam	GM	GM	A-2	A-4	0	0	40-60	35-55	25-45	10-10	15-15	NP 10
	8-12	Clay loam	CM		A-7	A-7	0	0	95-100	85-100	70-95	40-60	15-15	NP 5
	12-16	Gravelly clay loam	SC	CL	A-7	A-7	0	0	80-85	70-75	65-85	40-60	15-15	NP 5
	16-20	Gravelly loam					0	0	0	0	0	0	---	NP
	20-24	Gravelly loam					0	0	0	0	0	0	---	NP
1:50	0-2	Gravelly sandy loam	SM		A-2	A-2	0	0	65-80	60-75	50-65	10-10	15-15	NP 5
	2-4	Gravelly sandy loam	SM		A-2	A-2	0	0	65-80	60-75	50-65	10-10	15-15	NP 5
	4-6	Gravelly sandy loam	SM		A-2	A-2	0	0	65-80	60-75	50-65	10-10	15-15	NP 5
	6-8	Weathered bedrock					0	0	0	0	0	0	---	NP
Ashdamp	0-2	Sandy loam	SM		A-2	A-2	0	0					15-15	NP 5
	2-4	Sandy loam	SM		A-2	A-2	0	0					15-15	NP 5
	4-6	Weathered bedrock					0	0					---	NP
Lava	0-2	Loamy fine sand	SM		A-2	A-2	0	0	100	100	80-95	25-35	---	NP
	2-4	Fine sandy loam, sandy loam	SM		A-2	A-4	0	0	100	100	80-90	30-40	20-25	NP 5
	4-6	Fine sand, loamy fine sand	SM		A-2	A-2	0	0	85-100	85-100	70-80	10-20	---	NP
1:100	0-2	Loamy fine sand	SM		A-2	A-2	0	0	100	100	80-95	25-35	---	NP
	2-4	Fine sandy loam, sandy loam	SM		A-2	A-2	0	0	100	100	80-90	30-40	20-25	NP 5
	4-6	Fine sand, loamy fine sand	SM		A-2	A-2	0	0	85-100	85-100	70-80	10-20	---	NP
Corral	0-2	Loamy fine sand	SM		A-2	A-2	0	0	95-100	95-100	80-100	20-35	---	NP
	2-4	Clay loam, loam, sandy clay loam	CL		A-6	A-6	0	0	80-100	75-100	65-80	30-75	40	NP 10
	4-6	Weathered bedrock					0	0	0	0	0	0	---	NP

TABLE 15 - ENGINEERING INDEX OF SOILS Continued

Map symbol and soil name	Depth	USDA texture	Unified		ASTM	Liquid limit		Plasticity index		Shrinkage	Swelling	Remarks		
			CL	ML		LL	PI							
1240 (DOM ? M. GRA. S)	0-4	Very cobbly loam	OC	OM	OC	A-6	A-6	0-5	25-30	35-70	30-45	4-15	5-10	NP
	4-12	Clay	CH			A-7		0	0-10	90-100	85-100	80-95	80-95	NP
	12-15	Clay, clay loam, gravelly	CL	CH	SC	A-7		0	0-15	70-90	65-85	60-80	65-80	NP
		Weathered bedrock						0	0	0	0	0	0	NP
Hart Camp-----	0-3	Stony loam	ML			A-6	A-6	1-5	25-30	35-70	30-45	4-15	5-10	NP
		Gravelly loam, sandy clay loam gravelly clay	SC			A-2	A-2	0	0-10	70-80	60-75	45-60	10-20	NP
	15-20	Weathered bedrock						0	0	0	0	0	0	NP
745, Hart Camp-----	0-4	Very gravelly sandy loam	GM			A-1	A-1	0						NP
	4	Gravelly sandy loam	ML	GM		A-1	A-1	0						NP
	4-15	Gravelly sandy loam	ML	GM		A-1	A-1	0						NP
	15-20	Weathered bedrock						0						NP
745, Hart Camp-----	0-4	Gravelly sandy loam	GM	GM		A-1	A-1	1-5						NP
	4-15	Gravelly sandy loam	OC	SC		A-1	A-1	0						NP
	15-20	Weathered bedrock						0						NP
Frontiers-----	0-5	Gravelly sandy loam	SM			A-1, A-1		0						NP
	5-22	Gravelly sandy loam, clay loam	ML	GM	SM	A-1, A-1		0-5	55-70	50-75	40-65	10-35	20-35	NP
	22-30	Weathered bedrock						0	0	0	0	0	0	NP
1250 Ashcroft-----	0-2	Very gravelly fine sandy	SM			A-1		0	0-5	60-75	55-80	45-60	10-20	NP
	2-9	Gravelly fine sandy	SM			A-1		1	0	65-75	55-65	45-55	10-35	NP
	9-22	Gravelly fine sandy	SM	SM		A-1	A-1	0	0	65-75	55-65	45-55	10-35	NP
	22-30	Weathered bedrock						0	0	0	0	0	0	NP

TABLE 1. SOIL SURVEY MAP, NORTH 72-DEGREE E, 10-MINUTE

Map symbol Abbreviation	Depth feet	Soil Series	Classification		Fragments		Percentage passing sieve number				Liquid limit Pct	Plastic index
			Unified	ASTM	>10 inches	1-10 inches	4					
								10	40	200		
					Pct	Pct					Pct	
Newman	0-6	Stony loam	SM SC SM, ML CL ML	A 4	1-5	5-10	80-90	70-80	60-75	40-70	15-16	MP-10
	6-14	Clay loam, gravelly clay loam, sandy clay loam	CL SC	A 4	0	0-5	75-95	60-90	50-80	40-70	15-40	10-20
	14-16	Unweathered bedrock			0	0	0	0	0	0	---	NP
Hagwood	0-17	Very gravelly loam	GM GC	A 2	0	5-10	90-95	75-90	70-85	25-35	25-30	5-10
	17-40	Very gravelly loam	GC GM GC	A 2	0	5-25	90-95	75-90	70-85	20-35	25-35	5-15
	40-50	Very cobbly loam, very gravelly loam	GC GM GC	A 2	0-5	15-40	90-95	75-90	70-85	25-35	25-35	5-15
	50-54	Unweathered bedrock			0	0	0	0	0	0	---	NP
Hawkins	0-6	Stony loam	SM SC SM, ML CL ML	A 4	1-5	5-10	80-90	70-85	60-75	40-70	15-16	MP-10
	6-41	Clay loam, gravelly clay loam, sandy clay loam	CL SC	A 4	0						15-40	10-20
	41-45	Unweathered bedrock			0	0	0	0	0	0	---	NP
Hagwood	0-5	Boundary loam	ML SM	A 4	2-5	0-5	75-95				10-10	20
	5-15	Extremely gravelly loam, very gravelly loam	GP GM GM GP GC GM GC	A 1 A 2	2-5	5-10	15-90	10-45	5-35	5-10	10-10	20
	15-19	Weathered bedrock			0	0	0	0	0	0	---	NP
Hagwood	0-15	Gravelly loam, gravelly loam, gravelly silt loam	CL GM GC SC SM CL ML CL	A 4 A 4, A-6	0 0	5-10	15-80 60-90	45-80 50-75	40-75 40-70	20-65 15-45	25-35 25-35	10-15 5-15
	15-60	Very gravelly clay loam, very gravelly silty clay loam, very gravelly loam	GC	A-2 A-6	0	0	40-60	25-50	10-45	25-40	15-40	15-20
Fitzwater	0-10	Extremely stony loam	GC SC, SC SM GM GC	A 2, A-6	25-35	15-45	50-95	40-80	15-70	25-50	25-30	5-10
	10-15	Extremely cobbly clay loam	GM GC, GC, SC SC SM	A 2, A-6, A-6	5-15	45-65	55-75	40-60	35-60	25-50	25-35	5-15
	15-60	Extremely cobbly loam, extremely cobbly loam	GM GC, GC, SC SC SM	A-2 A-1	15-55	45-65	15-65	25-50	20-45	15-35	25-30	5-10

TABLE 15. FINE MATERIAL, NORTH PART, NV. (continued)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing				Unified	Plasticity
			Unified	ASTM	>10 inches	>2.0 inches	No.	No.				
								10	40	200		
	ft.				Pct	Pct						
265 (doo Westbutte	0-3	Stony loam	GM ML	A-4	2-5	15-25	75-95	70-90	60-80	40-60	25-35	5-10
	3-12	Very cobbly stony loam	GM SM	A-2, A-4	15-45	15-45	40-75	45-70	40-60	30-50	35-55	5-10
	12-38	Extremely stony loam	GC, SC	A-2, A-4	5-35	10-55	30-75	45-70	40-60	30-50	25-40	5-15
	38-42	Unweathered bedrock			0	0	0	0	0	0	---	NP
270 Hess	0-10	Gravelly loam	GM SM ML	A-4								NP
	10-21	Very gravelly loam very gravelly sandy loam	GM SM GC	A-4								NP
	21-42	Very gravelly loam	GM SM	A-2, A-4	0	0-10	15-75	35-90	15-45	10-35	20-35	NP
	42-46	Unweathered bedrock			0	0	0	0	0	0	---	NP
271 Hess	0-10	Gravelly loam	GM SM ML	A-4	5-25	10-30	70-95	45-60	35-70	40-50	15-25	NP 5
	10-21	Very gravelly loam	GM SM	A-2, A-4	0	0-10	35-75	25-50	15-45	10-35	20-35	NP 10
	21-42	Very gravelly loam	GM SM	A-2, A-4	0	0-10	35-75	25-50	15-45	10-35	20-35	NP 5
	42-46	Unweathered bedrock			0	0	0	0	0	0	---	NP
Howlands	0-10	Clay loam	GM ML	A-4								NP 10
	10-41	Clay loam	GM ML	A-4	0	5-15	75-95	60-90	50-80	40-70	25-40	10-20
	41-45	Unweathered bedrock			0	0	0	0	0	0	---	NP

1272
Rock Outcrop

[illegible]

Map symbol and soil name	Depth	USDA texture	Unified		ASTM		Fragments		Per cent passing						Liquid limit	Plastic index
			CL	ML	US	US	>10 inches	1-10 inches	4	10	20	40	60	80		
275 con, Keywat	0-6	Stony loam	ML	ML	A-4		1-3	5-15	65-85	80-95	90-95	95-100	95-100	95-100	95-100	NP
	6-10	Very gravelly sandy loam	GC	GC	A-2	A-4	0-5	5-10	40-60	55-75	75-90	85-95	90-95	95-100	NP	
	10-20	Unweathered bedrock					0	0	0	0	0	0	0	0	NP	
Westbute	0-3	Stony loam	ML	ML	A-4		1-3	5-15	65-85	80-95	90-95	95-100	95-100	95-100	NP	
	3-10	Very gravelly sandy loam	GC	GC	A-2	A-4	0-5	5-10	40-60	55-75	75-90	85-95	90-95	95-100	NP	
	10-20	Unweathered bedrock					0	0	0	0	0	0	0	0	NP	
275 con, Keywat	0-3	Stony loam	ML	ML	A-4		1-3	5-15	65-85	80-95	90-95	95-100	95-100	95-100	NP	
	3-10	Gravelly loam	GC	GC	A-2	A-4	0-5	5-10	40-60	55-75	75-90	85-95	90-95	95-100	NP	
	10-20	Unweathered bedrock					0	0	0	0	0	0	0	0	NP	
275 con, Keywat	0-3	Stony loam	ML	ML	A-4		1-3	5-15	65-85	80-95	90-95	95-100	95-100	95-100	NP	
	3-10	Gravelly loam	GC	GC	A-2	A-4	0-5	5-10	40-60	55-75	75-90	85-95	90-95	95-100	NP	
	10-20	Unweathered bedrock					0	0	0	0	0	0	0	0	NP	
275 con, Keywat	0-3	Stony loam	ML	ML	A-4		1-3	5-15	65-85	80-95	90-95	95-100	95-100	95-100	NP	
	3-10	Gravelly loam	GC	GC	A-2	A-4	0-5	5-10	40-60	55-75	75-90	85-95	90-95	95-100	NP	
	10-20	Unweathered bedrock					0	0	0	0	0	0	0	0	NP	
275 con, Keywat	0-3	Stony loam	ML	ML	A-4		1-3	5-15	65-85	80-95	90-95	95-100	95-100	95-100	NP	
	3-10	Gravelly loam	GC	GC	A-2	A-4	0-5	5-10	40-60	55-75	75-90	85-95	90-95	95-100	NP	
	10-20	Unweathered bedrock					0	0	0	0	0	0	0	0	NP	
275 con, Keywat	0-3	Stony loam	ML	ML	A-4		1-3	5-15	65-85	80-95	90-95	95-100	95-100	95-100	NP	
	3-10	Gravelly loam	GC	GC	A-2	A-4	0-5	5-10	40-60	55-75	75-90	85-95	90-95	95-100	NP	
	10-20	Unweathered bedrock					0	0	0	0	0	0	0	0	NP	
275 con, Keywat	0-3	Stony loam	ML	ML	A-4		1-3	5-15	65-85	80-95	90-95	95-100	95-100	95-100	NP	
	3-10	Gravelly loam	GC	GC	A-2	A-4	0-5	5-10	40-60	55-75	75-90	85-95	90-95	95-100	NP	
	10-20	Unweathered bedrock					0	0	0	0	0	0	0	0	NP	
275 con, Keywat	0-3	Stony loam	ML	ML	A-4		1-3	5-15	65-85	80-95	90-95	95-100	95-100	95-100	NP	
	3-10	Gravelly loam	GC	GC	A-2	A-4	0-5	5-10	40-60	55-75	75-90	85-95	90-95	95-100	NP	
	10-20</															

TABLE 1.5. SOIL SURVEY OF THE STATE OF TEXAS

Map symbol and soil name	Depth In	USDA texture	Unified		ASTM		Sieve analysis				Liquid limit percent	Plasticity index			
					No. 10		No. 40								
					inches	inches	4	10	40	200					
							Percent	Percent			Percent				
1290 (cont.) A-1 (cont.)		Gravelly loam, gravelly silt loam	GM	OC	SC	SM	A-1, A-2	0	0	40-60	55-75	40-70	15-25	25-35	0-15
	12-20	Very gravelly clay loam	GC				A-1, A-2	0	0	40-60	55-75	30-45	15-25	15-25	15-30
		A-1, A-2													
		A-1, A-2													
		A-1, A-2													
295 m	0-10	Cobbly loam	SC	SM	CL	ML	A-1	0	0	40-60	55-75	40-70	15-25	15-25	0-15
	10-17	Very cobbly clay loam	GC	SC	CL		A-1, A-2	0	0	40-60	55-75	40-70	15-25	15-25	0-15
	17-30	Very cobbly clay	CL	CH			A-1	0	0	40-60	55-75	40-70	15-25	15-25	0-15
	30-34	Unweathered bedrock						0	0	0	0	0	0	0	NP
Blissard	0-2	Very cobbly silty clay	CL	ML	OC		A-1, A-2	0	0	40-60	55-75	40-70	15-25	15-25	0-15
	2-5	Silty clay, clay	CH				A-1	0	0	40-60	55-75	40-70	15-25	15-25	0-15
	5-10	Cobbly clay	CH				A-1	0	0	40-60	55-75	40-70	15-25	15-25	0-15
10 m															
															</

TABLE 15 - MECHANICAL AND CHEMICAL PROPERTIES Continued

Map symbol and soil name	Depth	USDA texture	Classification		Shrinkage		Percentages passing of sieve number				Liquid limit mm	Plasticity index	
			Coarse	Fine	Free	swell	2	4	20	40			
1311 con't:													
Aeric Epiaquents	0-4	Silt loam	ML	A-3							20-25	NP-5	
	4-12	Silty clay loam, silty clay	CL	A-3	A-3						20-25	NP-5	
	42-60	Stratified silt loam to silty clay loam	ML	A-3	A-3	A-3					20-25	NP-5	
1312 con't:													
Aeric Epiaquents	0-5	Silty clay loam	CL	A-3	A-3						20-25	NP-5	
	5-12	Silty clay loam	CL	A-3	A-3						20-25	NP-5	
	12-40	Silty clay loam, silty clay	CL	A-3	A-3						20-25	NP-5	
	40-60	Stratified silty clay loam to clay	CL	A-3	A-3	A-3	0	0	100	100	95	95	20-25
1313 con't:													
Aeric Epiaquents	0-5	Fine sandy loam	SM	A-3	A-3						20-25	NP-5	
	5-12	Silty clay loam, silty clay	CL	A-3	A-3						20-25	NP-5	
	12-40	Silty clay loam, silty clay	CL	A-3	A-3						20-25	NP-5	
	40-60	Stratified silty clay loam to clay	CL	A-3	A-3	A-3	0	0	100	100	95	95	20-25
1320 con't:													
Dugway	0-5	Fine sandy loam	SM	A-3	A-3	0	0	100	100	70	90	35	40
	5-12	Silty clay loam, silty clay	CL	A-3	A-3	0	0	100	100	75	100	90	95
	12-40	Silty clay loam, silty clay	CL	A-3	A-3	0	0	100	100	95	100	75	95
	40-60	Stratified silty clay loam to clay	CL	A-3	A-3	0	0	100	100	90	100	70	95

TABLE 25. DOWNTOWNING OF THE RAILROADS—Continued

Map symbol and no.	depth	CSDA texture	Unified	AASHTO	F 42mm 9		Fac. data: passing				Liquid limit		Plasticity index
					10	10	4	4	75	75	20	40	
						100	100						
1.1		Fine sandy loam	ML	A-3, A-4	0	0			25-40	5-15	NP		
		Silty clay loam, clay	CL	A-5	0	0			25-40	5-15	NP		
	10-15	Loam, silt loam, silty clay loam	ML	A-3, A-4	0	0	100	100	75-100	75-85	30-40	5-15	
	1	Loam, silt loam, silty clay loam	ML	A-3, A-4	0	0	0						NP
1.2		Silt loam	ML	A-4	0	0	100	100	75-100	75-85	30-40	5-15	
	0-10	Clay silty clay loam	CL	A-5	0	0	100	100	75-100	75-85	30-40	5-15	
	10-20	Stratified sandy clay loam to clay	CL	A-5	0	0	75-100	75-100	80-100	80-90	40-60	15-35	10-15
1.3		Very stony loam	GM, ML	A-4	5-25	10-30	35-65	50-80	40-70	15-35	25-35	5-10	
1.4		Stony loam	ML	A-4									
	0-10	Gravelly loam, gravelly sandy clay loam, gravelly clay loam	SC	A-3, A-4					45-75	50	20-40	NP	
	10-20	Weathered bedrock			0	0	0	0	0	0	---	NP	
1.5		Very stony loam	GM, ML	A-4	5-25	10-30	35-65	50-80	40-70	15-35	25-35	5-10	
	0-10	Very gravelly	GC	A-2, A-3, A-4	0-5	5-20	40-80	35-55	10-45	25-40	15-50	15-25	
	10-20	Unweathered bedrock			0	0	0	0	0	0	---	NP	

TABLE 15 ENGINEER NO. 10000 PROPERTIES Continued

[illegible]

TABLE 15. SOILS OF THE WASHOE COUNTY, NV. CONTINUED

Map symbol and soil name	Depth	Soil texture	Soil class	Fragment	Percentage passing sieve number						Liquid limit	Plastic index
					20	40	60	100	200	400		
											Ret	
Washoe	0-6	Fine sandy loam SM	A-4			85	90	95	98	100	30-35	MP-5
	6-14	Stratified sandy loam to clay loam	A-4			85	90	95	98	100	30-40	5-10
	14-44	Stratified gravely loamy sand to clay loam	A-4			85	90	95	98	100	30-40	5-10
Washoe	0-6	Fine sandy loam SM	A-4			85	90	95	98	100	30-35	MP-5
	6-14	Stratified sandy loam to clay loam	A-4			85	90	95	98	100	30-40	5-10
	14-44	Stratified gravely loamy sand to clay loam	A-4			85	90	95	98	100	30-40	5-10
305 Hillman	0-6	Fragmental material	A								4	NP
Hillman	0-6	Very gravelly clay loam	A-3		5-10	5-10	55-65	40-55	15-45		20-30	5-10
	6-42	Very gravelly clay loam	A-3		0-5	15-20	45-55	55-80	10-40		40-55	10-25
	42-44	Unconsolidated bedrock			0	0	0	0	0		-	NP
1366 Hillman	0-6	Very gravelly clay loam	A-3		5-10	5-10	55-65	40-55	15-45		20-30	5-10
	6-42	Very gravelly clay loam	A-3		0-5	15-20	45-55	55-80	10-40		40-55	10-25
	42-60	Unconsolidated bedrock			0	0	0	0	0		-	NP
16 Hillman	0-6	Very stony loam GM GC	A-3		5-10	5-10	55-65	40-55	15-45	25-35	20-30	5-10
	6-42	Very gravelly clay loam	A-3		0-5	15-20	45-55	55-80	10-40		40-55	10-25
	42-44	Unconsolidated bedrock			0	0	0	0	0		-	NP
Field nr	0-2	Very stony loam CL ML ML CL A-4	A-4		15-25	25-35	55-100	30-100	40-30	55-5	25-35	5-10
	2-18	Very stony clay CL, GM	A-4		25-35	40-50	75-90	70-85	65-75	50-65	40-60	20-35
	18-2	Unconsolidated bedrock			0	0	0	0	0		-	NP
Hillman Land	0-6	Fragmental material	A-1		10-25	10-25	0-10	0-5	0-5	0	0-14	NP

TABLE 15. SOIL WASHING INDEX PROPERTIES Continued

Map symbol and soil name	Depth	Soil texture	Color	Munsell	Frequency		Percent sand passing						Liquid limit, w %	Plastic index, PI
							4	10	20	40	60	100		
	10													
1	0-2	Very gravelly loam	GC	A 3			0	0-5	50-60	55-60	70-85	75-85	30-35	10-15
	2-10	Clay	CH CL	A 7			0	0	80-100	75-100	60-100	50-95	45-65	25-40
	10-21	Weathered silt					0	0	0	0	0	0	--	NP
2	0-2	Very cobbly loam	GC SC CL	A 4			0-5	40-60	85-95	60-80	70-75	75-85	30-35	10-15
	2-5	Sandy clay	SC CL	A 3 A 4 A 7			0	0-10	85-95	80-90	65-80	70-80	35-45	15-20
	5-13	Sandy clay, gravelly clay, sandy	SC CL, CH, GC	A 2, A 4			5-15	5-15	40-95	35-90	45-75	70-85	45-65	25-40
	13-21	Unweathered silt					0	0	0	0	0	0	--	NP
3	0-4	Clay	CH	A 7			0	0	100	100	90-100	75-95	60-75	35-50
	4-48	Clay	CH	A 7			0	0	100	100	90-100	75-95	60-75	35-50
	48-60	Clay silty clay	CH	A 7			0	0	100	100	90-100	75-95	60-75	35-50
4		Silty clay	CH	A 7			0	0	100	100	90-100	80-95	60-70	45-55
		Clay silty clay	CH	A 7			0	0	100	100	90-100	80-95	60-70	45-55
5		Very gravelly sandy loam	GM	A 1			0	0-5	60-60	75-80	20-30	10-20	20-25	NP-5
		Gravelly sandy clay loam	GM GC, SC SM	A 4			0	0	40-60	55-75	45-60	15-45	25-30	5-10
	1-2	Gravelly sandy loam very gravelly sandy loam	GM, SM	A-1, A 2			0	0-5	40-75	75-90	25-40	10-30	20-25	NP-5
	2	Stratified extremely cobbly coarse sand to extremely gravelly sand	GF	A 1			5-15	15-30	70-90	20-35	1-15	0-5	--	NP
6	0	Sand, am	SM	A 1 A 4 A 6			0	0-5	75-85	70-85	60-80	40-60	25-35	NP-15
	0-40	Gravelly sandy am gravelly sand	SC-SM, SC	A 2 A 4 A 6			0	0-5	75-85	70-85	60-80	40-60	25-35	NP-15
	40-60	Gravelly sandy am sand	SM SC SM	A-1, A-1			0	0-5	70-85	60-80	40-65	20-35	15-30	NP-10

"23" = ENG. MEAS. INDEX PROPERTIES Continued

[illegible]

TABLE 14. KNO-NEEP NO. 157 EX. FILL-FILLING continued

[illegible]

[illegible]

地址: 上海南京路 100 号 邮编: 200001 电话: 021-62486000

[illegible]

TABLE 16. PHYSICAL PROPERTIES OF THE SOILS. Continued

Map symbol and soil name	Depth in	Clay Pct	Moist bulk density g/cc	Permea- bility in/hr	Available water capacity in. in	Shrink swell potential	Organic matter Pct	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Xi	T		
1150 con n)	0 4	25 35	1 10	3 10								1
Buchanan	0 0 5 10	20 25 4 10	1 45 1 55	0 60 2 00	0 00 0 10	0 10 Moderate	1 0 3 0	0 15 0 17	2 2			1
4. n/a	1	4	4		4	4						1
1151 n	0 10 15 15	4 4 4			4			0 0	0 0			1
4. n/a		4	4		4							1
1152 n	0 10 15 15	4 4 4			4			0 0	0 0			1
4. n/a		4	4		4							1
1153 n	0 10 15 15	4 4 4			4			0 0	0 0			1
4. n/a		4	4		4							1
1154 n	0 10 15 15	4 4 4			4			0 0	0 0			1
4. n/a		4	4		4							1
1155 n	0 10 15 15	4 4 4			4			0 0	0 0			1
4. n/a		4	4		4							1
1156 n	0 10 15 15	4 4 4			4			0 0	0 0			1
4. n/a		4	4		4							1
1157 n	0 10 15 15	4 4 4			4			0 0	0 0			1
4. n/a		4	4		4							1
1158 n	0 10 15 15	4 4 4			4			0 0	0 0			1
4. n/a		4	4		4							1
1159 n	0 10 15 15	4 4 4			4			0 0	0 0			1
4. n/a		4	4		4							1
1160 n	0 10 15 15	4 4 4			4			0 0	0 0			1
4. n/a		4	4		4							1

TABLE 16 - PHYSICAL PROPERTIES OF THE SOILS -Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Perme- ability	Available water capacity	Shrink swell potential	Organic matter	Expansion factors			Wind erod- ibility group	Wind erod- ibility index
								e	Δe	Δ		
	In	Pct	g/cc	In/hr	In in		Pct					
1173 com 1 Nitpar- - - - -	0-8 8 11-14 14-17	15-25 47 15-15 15-15	1.25-1.25 1.25 1.25 1.25	0.20-0.60 0.20-0.60 0.04 0.01	0.15-0.17 0.15-0.17 0.15-0.17 0.15-0.17	Low Low Low Low	1.0-2.0 1.0-2.0 1.0-2.0 1.0-2.0	0.10 0.10 0.10 0.10	0.17 0.17 0.17 0.17	1 1 1 1	7 7 7 7	38 38 38 38
Uhalda- - - - -	0-4 4-22 22-37	10-15 37-35 35-15	1.25-1.25 1.25-1.25 1.25-1.25	0.40-0.60 0.40-0.60 0.40-0.60	0.12-0.14 0.12-0.14 0.12-0.14	Low Low Low	1.0-2.0 1.0-2.0 1.0-2.0	0.12 0.12 0.12	0.41 0.41 0.41	1 1 1	5 5 5	48 48 48
1174 Nitpar- - - - -	0-4 4-17 17-37	15-27 15-15 15-15	1.10-1.10 1.10-1.10 1.10-1.10	0.60-0.80 0.60-0.80 0.60-0.80	0.07-0.09 0.07-0.09 0.07-0.09	Moderate Moderate Moderate	1.0-1.0 1.0-1.0 1.0-1.0	0.15 0.15 0.15	0.17 0.17 0.17	1 1 1	7 7 7	38 38 38
Uhalda- - - - -	0-4 4-17 17-37	10-15 37-35 35-15	1.25-1.25 1.25-1.25 1.25-1.25	0.40-0.60 0.40-0.60 0.40-0.60	0.12-0.14 0.12-0.14 0.12-0.14	Low Low Low	1.0-2.0 1.0-2.0 1.0-2.0	0.12 0.12 0.12	0.41 0.41 0.41	1 1 1	5 5 5	48 48 48
1175 com 1 Nitpar- - - - -	0-4 4-17 17-37	15-27 15-15 15-15	1.10-1.10 1.10-1.10 1.10-1.10	0.60-0.80 0.60-0.80 0.60-0.80	0.07-0.09 0.07-0.09 0.07-0.09	Moderate Moderate Moderate	1.0-1.0 1.0-1.0 1.0-1.0	0.15 0.15 0.15	0.17 0.17 0.17	1 1 1	7 7 7	38 38 38
Uhalda- - - - -	0-4 4-17 17-37	10-15 37-35 35-15	1.25-1.25 1.25-1.25 1.25-1.25	0.40-0.60 0.40-0.60 0.40-0.60	0.12-0.14 0.12-0.14 0.12-0.14	Low Low Low	1.0-2.0 1.0-2.0 1.0-2.0	0.12 0.12 0.12	0.41 0.41 0.41	1 1 1	5 5 5	48 48 48
1176 com 1 Nitpar- - - - -	0-4 4-17 17-37	15-27 15-15 15-15	1.10-1.10 1.10-1.10 1.10-1.10	0.60-0.80 0.60-0.80 0.60-0.80	0.07-0.09 0.07-0.09 0.07-0.09	Moderate Moderate Moderate	1.0-1.0 1.0-1.0 1.0-1.0	0.15 0.15 0.15	0.17 0.17 0.17	1 1 1	7 7 7	38 38 38
Uhalda- - - - -	0-4 4-17 17-37	10-15 37-35 35-15	1.25-1.25 1.25-1.25 1.25-1.25	0.40-0.60 0.40-0.60 0.40-0.60	0.12-0.14 0.12-0.14 0.12-0.14	Low Low Low	1.0-2.0 1.0-2.0 1.0-2.0	0.12 0.12 0.12	0.41 0.41 0.41	1 1 1	5 5 5	48 48 48
1177 com 1 Nitpar- - - - -	0-4 4-17 17-37	15-27 15-15 15-15	1.10-1.10 1.10-1.10 1.10-1.10	0.60-0.80 0.60-0.80 0.60-0.80	0.07-0.09 0.07-0.09 0.07-0.09	Moderate Moderate Moderate	1.0-1.0 1.0-1.0 1.0-1.0	0.15 0.15 0.15	0.17 0.17 0.17	1 1 1	7 7 7	38 38 38
Uhalda- - - - -	0-4 4-17 17-37	10-15 37-35 35-15	1.25-1.25 1.25-1.25 1.25-1.25	0.40-0.60 0.40-0.60 0.40-0.60	0.12-0.14 0.12-0.14 0.12-0.14	Low Low Low	1.0-2.0 1.0-2.0 1.0-2.0	0.12 0.12 0.12	0.41 0.41 0.41	1 1 1	5 5 5	48 48 48
1178 com 1 Nitpar- - - - -	0-4 4-17 17-37	15-27 15-15 15-15	1.10-1.10 1.10-1.10 1.10-1.10	0.60-0.80 0.60-0.80 0.60-0.80	0.07-0.09 0.07-0.09 0.07-0.09	Moderate Moderate Moderate	1.0-1.0 1.0-1.0 1.0-1.0	0.15 0.15 0.15	0.17 0.17 0.17	1 1 1	7 7 7	38 38 38
Uhalda- - - - -	0-4 4-17 17-37	10-15 37-35 35-15	1.25-1.25 1.25-1.25 1.25-1.25	0.40-0.60 0.40-0.60 0.40-0.60	0.12-0.14 0.12-0.14 0.12-0.14	Low Low Low	1.0-2.0 1.0-2.0 1.0-2.0	0.12 0.12 0.12	0.41 0.41 0.41	1 1 1	5 5 5	48 48 48
1179 com 1 Nitpar- - - - -	0-4 4-17 17-37	15-27 15-15 15-15	1.10-1.10 1.10-1.10 1.10-1.10	0.60-0.80 0.60-0.80 0.60-0.80	0.07-0.09 0.07-0.09 0.07-0.09	Moderate Moderate Moderate	1.0-1.0 1.0-1.0 1.0-1.0	0.15 0.15 0.15	0.17 0.17 0.17	1 1 1	7 7 7	38 38 38
Uhalda- - - - -	0-4 4-17 17-37	10-15 37-35 35-15	1.25-1.25 1.25-1.25 1.25-1.25	0.40-0.60 0.40-0.60 0.40-0.60	0.12-0.14 0.12-0.14 0.12-0.14	Low Low Low	1.0-2.0 1.0-2.0 1.0-2.0	0.12 0.12 0.12	0.41 0.41 0.41	1 1 1	5 5 5	48 48 48
1180 com 1 Nitpar- - - - -	0-4 4-17 17-37	15-27 15-15 15-15	1.10-1.10 1.10-1.10 1.10-1.10	0.60-0.80 0.60-0.80 0.60-0.80	0.07-0.09 0.07-0.09 0.07-0.09	Moderate Moderate Moderate	1.0-1.0 1.0-1.0 1.0-1.0	0.15 0.15 0.15	0.17 0.17 0.17	1 1 1	7 7 7	38 38 38
Uhalda- - - - -	0-4 4-17 17-37	10-15 37-35 35-15	1.25-1.25 1.25-1.25 1.25-1.25	0.40-0.60 0.40-0.60 0.40-0.60	0.12-0.14 0.12-0.14 0.12-0.14	Low Low Low	1.0-2.0 1.0-2.0 1.0-2.0	0.12 0.12 0.12	0.41 0.41 0.41	1 1 1	5 5 5	48 48 48
1181 com 1 Nitpar- - - - -	0-4 4-17 17-37	15-27 15-15 15-15	1.10-1.10 1.10-1.10 1.10-1.10	0.60-0.80 0.60-0.80 0.60-0.80	0.07-0.09 0.07-0.09 0.07-0.09	Moderate Moderate Moderate	1.0-1.0 1.0-1.0 1.0-1.0	0.15 0.15 0.15	0.17 0.17 0.17	1 1 1	7 7 7	38 38 38
Uhalda- - - - -	0-4 4-17 17-37	10-15 37-35 35-15	1.25-1.25 1.25-1.25 1.25-1.25	0.40-0.60 0.40-0.60 0.40-0.60	0.12-0.14 0.12-0.14 0.12-0.14	Low Low Low	1.0-2.0 1.0-2.0 1.0-2.0	0.12 0.12 0.12	0.41 0.41 0.41	1 1 1	5 5 5	48 48 48
1182 com 1 Nitpar- - - - -	0-4 4-17 17-37	15-27 15-15 15-15	1.10-1.10 1.10-1.10 1.10-1.10	0.60-0.80 0.60-0.80 0.60-0.80	0.07-0.09 0.07-0.09 0.07-0.09	Moderate Moderate Moderate	1.0-1.0 1.0-1.0 1.0-1.0	0.15 0.15 0.15	0.17 0.17 0.17	1 1 1	7 7 7	38 38 38
Uhalda- - - - -	0-4 4-17 17-37	10-15 37-35 35-15	1.25-1.25 1.25-1.25 1.25-1.25	0.40-0.60 0.40-0.60 0.40-0.60	0.12-0.14 0.12-0.14 0.12-0.14	Low Low Low	1.0-2.0 1.0-2.0 1.0-2.0	0.12 0.12 0.12	0.41 0.41 0.41	1 1 1	5 5 5	48 48 48

TABLE 1. PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

Map symbol and soil name	Depth cm	No. of samples	Perme- bility	Available water capacity	Shrink swell potential	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
							r	sf	%		
11 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
12 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
13 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
14 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
15 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
16 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
17 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
18 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
19 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
20 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
21 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
22 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
23 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
24 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
25 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
26 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
27 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
28 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
29 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
30 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
31 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
32 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
33 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
34 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
35 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
36 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
37 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
38 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
39 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
40 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
41 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
42 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
43 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
44 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
45 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
46 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
47 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
48 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
49 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
50 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
51 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
52 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
53 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
54 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
55 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
56 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
57 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
58 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
59 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
60 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
61 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
62 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
63 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
64 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
65 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
66 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
67 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
68 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
69 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
70 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
71 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
72 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
73 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
74 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
75 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
76 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
77 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
78 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
79 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
80 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
81 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
82 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
83 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
84 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
85 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
86 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
87 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
88 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
89 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
90 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
91 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
92 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
93 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
94 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
95 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
96 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
97 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
98 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
99 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18
100 Wash. loam	0-10	4	1	1	1	4	1	1	1	7	18

TABLE 16. PHYSICAL PROPERTIES OF THE SOILS -Continued

[illegible]

$\frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} f(x) \delta(x-a) dx = f(a)$

[illegible]

PHYSICAL PROPERTIES OF THE SOILS Continued

No. of soil and or 484	Depth	Clay	Moist bulk density	Perme- ability	Available water	Silt size	Expansion factors			Wind group	W index
							e	f	+ group		
265, 408, Westhutte	0-3	1	1			1		1			5
	3-6	1	1			1		1			
270	0-3	1	1			1		1			10
	3-6	1	1			1		1			
271	0-3	1	1			1		1			10
	3-6	1	1			1		1			
272	0-3	1	1			1		1			10
	3-6	1	1			1		1			
273	0-3	1	1			1		1			10
	3-6	1	1			1		1			
274	0-3	1	1			1		1			10
	3-6	1	1			1		1			
275	0-3	1	1			1		1			10
	3-6	1	1			1		1			
276	0-3	1	1			1		1			10
	3-6	1	1			1		1			
277	0-3	1	1			1		1			10
	3-6	1	1			1		1			
278	0-3	1	1			1		1			10
	3-6	1	1			1		1			
279	0-3	1	1			1		1			10
	3-6	1	1			1		1			
280	0-3	1	1			1		1			10
	3-6	1	1			1		1			
281	0-3	1	1			1		1			10
	3-6	1	1			1		1			
282	0-3	1	1			1		1			10
	3-6	1	1			1		1			
283	0-3	1	1			1		1			10
	3-6	1	1			1		1			
284	0-3	1	1			1		1			10
	3-6	1	1			1		1			
285	0-3	1	1			1		1			10
	3-6	1	1			1		1			
286	0-3	1	1			1		1			10
	3-6	1	1			1		1			
287	0-3	1	1			1		1			10
	3-6	1	1			1		1			
288	0-3	1	1			1		1			10
	3-6	1	1			1		1			
289	0-3	1	1			1		1			10
	3-6	1	1			1		1			
290	0-3	1	1			1		1			10
	3-6	1	1			1		1			
291	0-3	1	1			1		1			10
	3-6	1	1			1		1			
292	0-3	1	1			1		1			10
	3-6	1	1			1		1			
293	0-3	1	1			1		1			10
	3-6	1	1			1		1			
294	0-3	1	1			1		1			10
	3-6	1	1			1		1			
295	0-3	1	1			1		1			10
	3-6	1	1			1		1			
296	0-3	1	1			1		1			10
	3-6	1	1			1		1			
297	0-3	1	1			1		1			10
	3-6	1	1			1		1			
298	0-3	1	1			1		1			10
	3-6	1	1			1		1			
299	0-3	1	1			1		1			10
	3-6	1	1			1		1			
300	0-3	1	1			1		1			10
	3-6	1	1			1		1			

TABLE 16 -- PHYSICAL PROPERTIES OF THE SOILS Continued

[illegible]

TABLE 15. PHYSICAL PROPERTIES OF THE SOILS. Continued

Map symbol and soil name	Depth in	Clay wt %	Moist bulk density g/cc	Perme- ability class	Available water capacity wt %	Shrink- age potential mm	Organic matter wt %	Frost action			Wind erod- ibility index	Seed erod- ibility index
								X	XF	T		
135 (cont) Hart Camp	1-2 10-12					Moderate	4	4	4	2	6	48
136 Rayne	1-2 10-12	14-15				Moderate				1	7	38
137 Rayne	1-2 10-12					Moderate				1	6	40
West 100	1-2 10-12					Moderate	4		4	2	7	38
138 Rayne	1-2 10-12					Moderate	4		4	2		4
139 Rayne	1-2 10-12					Moderate				1	6	48
140 Rayne	1-2 10-12					Moderate				1	5	54
141 Rayne	1-2 10-12					Moderate				1	7	38
142 Devada	1-2 10-12					Moderate			4	1	7	38
143 Black Outcrop	1-2 10-12					Moderate	4		4	2	7	38
144 West 100	1-2 10-12					Moderate	4		4	2	7	38
145 West 100	1-2 10-12					Moderate	4		4	2	7	38

TABLE 16 --PHYSICAL PROPERTIES OF THE SOILS --Continued

Map symbol and soil name	Depth	Clay	Moist	Perme-	Available	Shrink-	Organic	Erosion Factors		Wind erodi-	Wind erodi-
								F	Ft		
	In	Per	g/cc	In hr							
11 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Low Low --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	6 6 --
12 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
13 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
14 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
15 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
16 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
17 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
18 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
19 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
20 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
21 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
22 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
23 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
24 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
25 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
26 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
27 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
28 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
29 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
30 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
31 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
32 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
33 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
34 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
35 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
36 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
37 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
38 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
39 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
40 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
41 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
42 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
43 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
44 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
45 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
46 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
47 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
48 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
49 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
50 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
51 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
52 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
53 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
54 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
55 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
56 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
57 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
58 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
59 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
60 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
61 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
62 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
63 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
64 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
65 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
66 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
67 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
68 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --	0-10 0-10 --	Moderate Moderate --	1-0-4-0 1-0-4-0 --	0-10 0-10 --	3 3 --	7 7 --
69 Reddish clay	0-5 5-15 15-25	0-22 12-18 --	1-30 1-25 --	1-10 1-10 --	0-60 0-60 --						

TABLE 16 PHYSICAL PROPERTIES OF THE SOILS Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Perma- bility	Available water capacity	Shrink swell potential	Organic matter	Erosion Factors			Wind erodi- bility group	Wind erodi- bility index
		Pct	g/cc	in/hr	in/in		Pct	K	EF	T		
H BT A-1		40 80 1 20 2 10		0 00 0 06	0 14 0 15	High	1 0 1 0	0 30	0 20	5	4	55
		40 80 1 20 1 40		0 00 0 06	0 14 0 15	High	0 1 1 0	0				
H BT A-1		10 18 1 10 1 40		0 40 1 00	0 04 0 08	Low	1 0 1 0	0 17	0 13	3	5	56
		18 27 1 30 1 40		0 20 0 60	0 12 0 15	Moderate	1 0 1 0	0 19	0 24			
		10 18 1 40 1 40		0 60 1 00	0 04 0 10	Low	0 0 2 0	0 17	0 32			
		0 5 1 45 1 40		0 00 10 00	0 03 0 05	Low	0 0 0 2	0 02	0 15			
H BT A-1		12 18 1 35 1 30		0 60 1 00	0 08 0 13	Low	1 0 1 0	0 19	0 30	5	3	51
		1 1 40										
H BT A-1		10 1 40		0 40 1 00	0 04 0 08	Low	1 0 1 0	0 17	0 30	3	5	56
		10 1 40										
H BT A-1		25 35 1 25 1 40		0 10 0 60	0 14 0 18	Moderate	0 5 1 0	0 18	0 43			
		15 35 1 20 1 35		0 60 1 30	0 15 0 15	Low	1 0 2 0	0 17	0 32	1	6	48
H BT A-1		5 15 1 25 1 30		0 00 1 00	0 07 0 09	Low	1 0 2 0	0 15	0 32	1	5	54
		15 60 1 20 1 35										
H BT A-1		5 15 1 45 1 45										
		5 15 1 40 1 35		0 00 0 30	0 07 0 09	Low	1 0 2 0	0 15	0 32	1	5	54
H BT A-1		15 35 1 05 1 30										
		10 35 1 10 1 35										
H BT A-1												
H BT A-1		1 35 1 55		0 00 0 00	0 07 0 09	Low	1 0 2 0	0 15	0 32	1	5	54
		1 20 1 35										
H BT A-1		1 45 1 65										
H BT A-1		1 15 1 25		0 60 1 00	0 10 0 13	Low	1 0 2 0	0 17	0 32	1	5	54
		10 60 1 15 1 25		0 00 0 05	0 14 0 16	High	0 0 1 0	0 34	0 34			
H BT A-1		15 50 1 10 1 30										
Buffyrah-----	0-2	10-27 1 10 1 25		0 20 1 60	0 12 0 15	Moderate	2 0 4 0	0 32	0 55	1	7	38
	2-4.5											
	4.5-27											
	27-50			0 00 1 01								

TABLE 16. PHYSICAL PROPERTIES OF THE SOILS Continued

[illegible]

TABLE 17 - CHEMICAL PROPERTIES OF THE SOILS Continued

Map symbol and soil name	pH	Ca	Mg	K	Na	Fe	Cu	Mn	Zn	adsorp. co. rat.
		%	%	ppm	ppm	ppm	ppm	ppm	ppm	
1062 Old Camp-----	8.2	10.30	0							
	2.15	27.35	17							
1063 Old Camp	8.7	15.35								
1064 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1065 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1066 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1067 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1068 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1069 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1070 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1071 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1072 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1073 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1074 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1075 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1076 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1077 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1078 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1079 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1080 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1081 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1082 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1083 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1084 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1085 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1086 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1087 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1088 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1089 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1090 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1091 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1092 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1093 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1094 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1095 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1096 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1097 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1098 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1099 Old Camp	8.2	10.30	0							
	2.15	27.35	17							
1100 Old Camp	8.2	10.30	0							
	2.15	27.35	17							

TABLE 17. CHEMICAL PROPERTIES OF THE SOILS Continued

[illegible]

TABLE 2. Soil Survey of the ...

Map symbol and name	Depth	Clay	Cation- exchange capacity	Soil pH	Calcium percentage	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq 100g	pH	Pct	Pct	mmhos/cm	
1166 (cont'd)								
Black		30 20 10 0 30 0	4 1 7 3	---	---	---	---	---
		27 35 24 0 32 0	4 1 7 3	---	---	---	---	---
		15 45 30 0 18 0	4 1 8 4	---	---	0.2	---	---
		5 25 4 0 11 0	7 0 0 0	---	---	0.3	---	---
Black		15 27 20 0 30 0	4	---	---	---	---	---
		40 60 30 0 50 0	---	---	---	---	---	---
Black		8 18 5 0 20 0	---	---	---	---	---	---
		24 35 10 0 25	---	---	---	---	---	---
Black		5 27 20 0 30	---	---	---	---	---	---
		40 60 30 0 40	---	---	---	---	---	---
Black		15 27 20 0 30 0	---	---	---	---	---	---
		4 0 10 0 10 0	---	---	---	---	---	---
Black		20 35 10	---	---	---	---	---	---
		27 35 20	---	---	---	---	---	---
		15 50 25 0 4	---	---	---	---	---	---
Black		15 27 3	---	---	---	---	---	---
		40 60 3	---	---	---	---	---	---
Indian Creek		15 25 14	---	---	---	---	---	---
		40 55 15 0 45 0	---	---	---	---	---	---
		5 20 5 0 20 0	---	---	---	---	---	---
Black		18 25 10 0 15	---	---	---	---	---	---
		4 0 10 0 10 0	---	---	---	---	---	---
Black		4 4 4 4 4 4	---	---	---	---	---	---
		5 0 4 4 4 4	---	---	---	---	---	---
Black		15 25 25 0 25	---	---	---	---	---	---
		40 60 30 0 50	---	---	---	---	---	---
Black		5 4 4 4 4 4	---	---	---	---	---	---
		5 17 5 4 4 4	---	---	---	---	---	---
1171								
Black		5 4 4 4 4 4	---	---	---	---	---	---
		5 17 5 4 4 4	---	---	---	---	---	---
		17-21						

TABLE 17 - CHEMICAL PROPERTIES OF THE SOILS Continued

Map sheet and soil name	Depth	Clay	Exchange- capacity	Soil reaction	Calcium carbonate	Organic matter	Salinity	Sodium adsorption ratio
		%	meq/100g	pH	%	%	mmhos/cm	
1173 (cont.) Nipta	0	15 35 50	4	7.5	1	1		
	1	45 60 60	4	7.5	1	1		
	2	15 45 55	4	7.5	1	1		
	3							
	4							
Unacid.	5							
	6							
	7							
4 mudstone	8	15 37 50		7.5	1	1		
	9	40 60 55	4	7.5	1	1		
5 silt	10	15 35		7.5	1	1		
	11	25 35 50	1	7.5	1	1		
1175 Furnace	12			7.5	1	1		
	13			7.5	1	1		
	14			7.5	1	1		
	15			7.5	1	1		
	16			7.5	1	1		
1176 siltstone	17			7.5	1	1		
	18			7.5	1	1		
1177 siltstone	19			7.5	1	1		
	20			7.5	1	1		
1178 siltstone	21			7.5	1	1		
	22			7.5	1	1		
1179 siltstone	23			7.5	1	1		
	24			7.5	1	1		
1180 siltstone	25			7.5	1	1		
	26			7.5	1	1		
1181 siltstone	27			7.5	1	1		
	28			7.5	1	1		
1182 siltstone	29			7.5	1	1		
	30			7.5	1	1		
1183 siltstone	31			7.5	1	1		
	32			7.5	1	1		
1184 siltstone	33			7.5	1	1		
	34			7.5	1	1		
1185 siltstone	35			7.5	1	1		
	36			7.5	1	1		
1186 siltstone	37			7.5	1	1		
	38			7.5	1	1		
1187 siltstone	39			7.5	1	1		
	40			7.5	1	1		
1188 siltstone	41			7.5	1	1		
	42			7.5	1	1		
1189 siltstone	43			7.5	1	1		
	44			7.5	1	1		
1190 siltstone	45			7.5	1	1		
	46			7.5	1	1		
1191 siltstone	47			7.5	1	1		
	48			7.5	1	1		
1192 siltstone	49			7.5	1	1		
	50			7.5	1	1		

TABLE 17. CHEMICAL PROPERTIES OF THE SOILS Continued

Map symbol and name	pH	Clay Pct	Cation exchange capacity meq 100g	Soil reaction pH	Calcium carbonate Pct	Gypsum Pct	Salinity mmhos/cm	Sodium adsorption ratio
17 Wey 1 P m	1 2 3 4	1 2 3 4		1 2 3 4				
18 N 2 m 2		1 2 3 4		1 2 3 4				
19 Wey 1 P m		1 2 3 4		1 2 3 4				
20 N 2 m 2		1 2 3 4		1 2 3 4				
21 Wey 1 P m		1 2 3 4		1 2 3 4				
22 N 2 m 2		1 2 3 4		1 2 3 4				
23 Wey 1 P m		1 2 3 4		1 2 3 4				
24 N 2 m 2		1 2 3 4		1 2 3 4				
25 Wey 1 P m		1 2 3 4		1 2 3 4				
26 N 2 m 2		1 2 3 4		1 2 3 4				
27 Wey 1 P m		1 2 3 4		1 2 3 4				
28 N 2 m 2		1 2 3 4		1 2 3 4				
29 Wey 1 P m		1 2 3 4		1 2 3 4				
30 N 2 m 2		1 2 3 4		1 2 3 4				
31 Wey 1 P m		1 2 3 4		1 2 3 4				
32 N 2 m 2		1 2 3 4		1 2 3 4				
33 Wey 1 P m		1 2 3 4		1 2 3 4				
34 N 2 m 2		1 2 3 4		1 2 3 4				
35 Wey 1 P m		1 2 3 4		1 2 3 4				
36 N 2 m 2		1 2 3 4		1 2 3 4				
37 Wey 1 P m		1 2 3 4		1 2 3 4				
38 N 2 m 2		1 2 3 4		1 2 3 4				
39 Wey 1 P m		1 2 3 4		1 2 3 4				
40 N 2 m 2		1 2 3 4		1 2 3 4				
41 Wey 1 P m		1 2 3 4		1 2 3 4				
42 N 2 m 2		1 2 3 4		1 2 3 4				
43 Wey 1 P m		1 2 3 4		1 2 3 4				
44 N 2 m 2		1 2 3 4		1 2 3 4				
45 Wey 1 P m		1 2 3 4		1 2 3 4				
46 N 2 m 2		1 2 3 4		1 2 3 4				
47 Wey 1 P m		1 2 3 4		1 2 3 4				
48 N 2 m 2		1 2 3 4		1 2 3 4				
49 Wey 1 P m		1 2 3 4		1 2 3 4				
50 N 2 m 2		1 2 3 4		1 2 3 4				
51 Wey 1 P m		1 2 3 4		1 2 3 4				
52 N 2 m 2		1 2 3 4		1 2 3 4				
53 Wey 1 P m		1 2 3 4		1 2 3 4				
54 N 2 m 2		1 2 3 4		1 2 3 4				
55 Wey 1 P m		1 2 3 4		1 2 3 4				
56 N 2 m 2		1 2 3 4		1 2 3 4				
57 Wey 1 P m		1 2 3 4		1 2 3 4				
58 N 2 m 2		1 2 3 4		1 2 3 4				
59 Wey 1 P m		1 2 3 4		1 2 3 4				
60 N 2 m 2		1 2 3 4		1 2 3 4				
61 Wey 1 P m		1 2 3 4		1 2 3 4				
62 N 2 m 2		1 2 3 4		1 2 3 4				
63 Wey 1 P m		1 2 3 4		1 2 3 4				
64 N 2 m 2		1 2 3 4		1 2 3 4				
65 Wey 1 P m		1 2 3 4		1 2 3 4				
66 N 2 m 2		1 2 3 4		1 2 3 4				
67 Wey 1 P m		1 2 3 4		1 2 3 4				
68 N 2 m 2		1 2 3 4		1 2 3 4				
69 Wey 1 P m		1 2 3 4		1 2 3 4				
70 N 2 m 2		1 2 3 4		1 2 3 4				
71 Wey 1 P m		1 2 3 4		1 2 3 4				
72 N 2 m 2		1 2 3 4		1 2 3 4				
73 Wey 1 P m		1 2 3 4		1 2 3 4				
74 N 2 m 2		1 2 3 4		1 2 3 4				
75 Wey 1 P m		1 2 3 4		1 2 3 4				
76 N 2 m 2		1 2 3 4		1 2 3 4				
77 Wey 1 P m		1 2 3 4		1 2 3 4				
78 N 2 m 2		1 2 3 4		1 2 3 4				
79 Wey 1 P m		1 2 3 4		1 2 3 4				
80 N 2 m 2		1 2 3 4		1 2 3 4				
81 Wey 1 P m		1 2 3 4		1 2 3 4				
82 N 2 m 2		1 2 3 4		1 2 3 4				
83 Wey 1 P m		1 2 3 4		1 2 3 4				
84 N 2 m 2		1 2 3 4		1 2 3 4				
85 Wey 1 P m		1 2 3 4		1 2 3 4				
86 N 2 m 2		1 2 3 4		1 2 3 4				
87 Wey 1 P m		1 2 3 4		1 2 3 4				
88 N 2 m 2		1 2 3 4		1 2 3 4				
89 Wey 1 P m		1 2 3 4		1 2 3 4				
90 N 2 m 2		1 2 3 4		1 2 3 4				
91 Wey 1 P m		1 2 3 4		1 2 3 4				
92 N 2 m 2		1 2 3 4		1 2 3 4				
93 Wey 1 P m		1 2 3 4		1 2 3 4				
94 N 2 m 2		1 2 3 4		1 2 3 4				
95 Wey 1 P m		1 2 3 4		1 2 3 4				
96 N 2 m 2		1 2 3 4		1 2 3 4				
97 Wey 1 P m		1 2 3 4		1 2 3 4				
98 N 2 m 2		1 2 3 4		1 2 3 4				
99 Wey 1 P m		1 2 3 4		1 2 3 4				
100 N 2 m 2		1 2 3 4		1 2 3 4				

TABLE 1. -- PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

Map sheet and soil name	pH		exchange capacity		reaction	carbonate		sodium adsorption ratio
	In	Pct	meq/100g	pH		Pct	Pct	
1187 Iron Hart Camp	1	1	1	1	1	1	1	1
1188 Hart Camp	1	1	1	1	1	1	1	1
1189 Hart Camp	1	1	1	1	1	1	1	1
1190 Hart Camp	1	1	1	1	1	1	1	1
1191 Hart Camp	1	1	1	1	1	1	1	1
1192 Hart Camp	1	1	1	1	1	1	1	1
1193 Hart Camp	1	1	1	1	1	1	1	1
1194 Hart Camp	1	1	1	1	1	1	1	1
1195 Hart Camp	1	1	1	1	1	1	1	1
1196 Hart Camp	1	1	1	1	1	1	1	1
1197 Hart Camp	1	1	1	1	1	1	1	1
1198 Hart Camp	1	1	1	1	1	1	1	1
1199 Hart Camp	1	1	1	1	1	1	1	1
1200 Hart Camp	1	1	1	1	1	1	1	1
1201 Hart Camp	1	1	1	1	1	1	1	1
1202 Hart Camp	1	1	1	1	1	1	1	1
1203 Hart Camp	1	1	1	1	1	1	1	1
1204 Hart Camp	1	1	1	1	1	1	1	1
1205 Hart Camp	1	1	1	1	1	1	1	1
1206 Hart Camp	1	1	1	1	1	1	1	1
1207 Hart Camp	1	1	1	1	1	1	1	1
1208 Hart Camp	1	1	1	1	1	1	1	1
1209 Hart Camp	1	1	1	1	1	1	1	1
1210 Hart Camp	1	1	1	1	1	1	1	1
1211 Hart Camp	1	1	1	1	1	1	1	1
1212 Hart Camp	1	1	1	1	1	1	1	1
1213 Hart Camp	1	1	1	1	1	1	1	1
1214 Hart Camp	1	1	1	1	1	1	1	1
1215 Hart Camp	1	1	1	1	1	1	1	1
1216 Hart Camp	1	1	1	1	1	1	1	1
1217 Hart Camp	1	1	1	1	1	1	1	1
1218 Hart Camp	1	1	1	1	1	1	1	1
1219 Hart Camp	1	1	1	1	1	1	1	1
1220 Hart Camp	1	1	1	1	1	1	1	1
1221 Hart Camp	1	1	1	1	1	1	1	1
1222 Hart Camp	1	1	1	1	1	1	1	1
1223 Hart Camp	1	1	1	1	1	1	1	1
1224 Hart Camp	1	1	1	1	1	1	1	1
1225 Hart Camp	1	1	1	1	1	1	1	1
1226 Hart Camp	1	1	1	1	1	1	1	1
1227 Hart Camp	1	1	1	1	1	1	1	1
1228 Hart Camp	1	1	1	1	1	1	1	1
1229 Hart Camp	1	1	1	1	1	1	1	1
1230 Hart Camp	1	1	1	1	1	1	1	1
1231 Hart Camp	1	1	1	1	1	1	1	1
1232 Hart Camp	1	1	1	1	1	1	1	1
1233 Hart Camp	1	1	1	1	1	1	1	1
1234 Hart Camp	1	1	1	1	1	1	1	1
1235 Hart Camp	1	1	1	1	1	1	1	1
1236 Hart Camp	1	1	1	1	1	1	1	1
1237 Hart Camp	1	1	1	1	1	1	1	1
1238 Hart Camp	1	1	1	1	1	1	1	1
1239 Hart Camp	1	1	1	1	1	1	1	1
1240 Hart Camp	1	1	1	1	1	1	1	1
1241 Hart Camp	1	1	1	1	1	1	1	1
1242 Hart Camp	1	1	1	1	1	1	1	1
1243 Hart Camp	1	1	1	1	1	1	1	1
1244 Hart Camp	1	1	1	1	1	1	1	1
1245 Hart Camp	1	1	1	1	1	1	1	1
1246 Hart Camp	1	1	1	1	1	1	1	1
1247 Hart Camp	1	1	1	1	1	1	1	1
1248 Hart Camp	1	1	1	1	1	1	1	1
1249 Hart Camp	1	1	1	1	1	1	1	1
1250 Hart Camp	1	1	1	1	1	1	1	1
1251 Hart Camp	1	1	1	1	1	1	1	1
1252 Hart Camp	1	1	1	1	1	1	1	1
1253 Hart Camp	1	1	1	1	1	1	1	1
1254 Hart Camp	1	1	1	1	1	1	1	1
1255 Hart Camp	1	1	1	1	1	1	1	1
1256 Hart Camp	1	1	1	1	1	1	1	1
1257 Hart Camp	1	1	1	1	1	1	1	1
1258 Hart Camp	1	1	1	1	1	1	1	1
1259 Hart Camp	1	1	1	1	1	1	1	1
1260 Hart Camp	1	1	1	1	1	1	1	1
1261 Hart Camp	1	1	1	1	1	1	1	1
1262 Hart Camp	1	1	1	1	1	1	1	1
1263 Hart Camp	1	1	1	1	1	1	1	1
1264 Hart Camp	1	1	1	1	1	1	1	1
1265 Hart Camp	1	1	1	1	1	1	1	1
1266 Hart Camp	1	1	1	1	1	1	1	1
1267 Hart Camp	1	1	1	1	1	1	1	1
1268 Hart Camp	1	1	1	1	1	1	1	1
1269 Hart Camp	1	1	1	1	1	1	1	1
1270 Hart Camp	1	1	1	1	1	1	1	1
1271 Hart Camp	1	1	1	1	1	1	1	1
1272 Hart Camp	1	1	1	1	1	1	1	1
1273 Hart Camp	1	1	1	1	1	1	1	1
1274 Hart Camp	1	1	1	1	1	1	1	1
1275 Hart Camp	1	1	1	1	1	1	1	1
1276 Hart Camp	1	1	1	1	1	1	1	1
1277 Hart Camp	1	1	1	1	1	1	1	1
1278 Hart Camp	1	1	1	1	1	1	1	1
1279 Hart Camp	1	1	1	1	1	1	1	1
1280 Hart Camp	1	1	1	1	1	1	1	1
1281 Hart Camp	1	1	1	1	1	1	1	1
1282 Hart Camp	1	1	1	1	1	1	1	1
1283 Hart Camp	1	1	1	1	1	1	1	1
1284 Hart Camp	1	1	1	1	1	1	1	1
1285 Hart Camp	1	1	1	1	1	1	1	1
1286 Hart Camp	1	1	1	1	1	1	1	1
1287 Hart Camp	1	1	1	1	1	1	1	1
1288 Hart Camp	1	1	1	1	1	1	1	1
1289 Hart Camp	1	1	1	1	1	1	1	1
1290 Hart Camp	1	1	1	1	1	1	1	1
1291 Hart Camp	1	1	1	1	1	1	1	1
1292 Hart Camp	1	1	1	1	1	1	1	1
1293 Hart Camp	1	1	1	1	1	1	1	1
1294 Hart Camp	1	1	1	1	1	1	1	1
1295 Hart Camp	1	1	1	1	1	1	1	1
1296 Hart Camp	1	1	1	1	1	1	1	1
1297 Hart Camp	1	1	1	1	1	1	1	1
1298 Hart Camp	1	1	1	1	1	1	1	1
1299 Hart Camp	1	1	1	1	1	1	1	1
1300 Hart Camp	1	1	1	1	1	1	1	1

TABLE 17. CHEMICAL PROPERTIES OF THE SOILS. Continued

Map symbol and soil name	Depth	Clay	Cation exchange capacity	Soil reaction	Calcium carbonate	Dyspros	Salinity	Sodium adsorption ratio
	In	Pct	meq 100g	pH	Pct	Pct	mmhos/cm	
1240 Ferry	4	1		7.4	0.5	+	0.3	0.2
Killerbuck	0-4 4-20 20-25	15-27 40-60 15-30	11-0 25-0 12-0	7.0-7.5 6.4-6.6 7.9-8.0	+++ 8.1 5-10	++ +++ ---	- 0.3 0.3	-- 0-5 0.5
1241 Bart		10-17 20-35	10 15					
1242 Aph	4			7.4				
1243 Aph	4	20-25	15-20					
1244 Ferry	4	5-15	10-15	7.4				
1245 Aph	4	5-10	10-15	7.4				
1246 Aph	4	5-10	10-15	7.4				
1247 Aph	4	5-10	10-15	7.4				
1248 Aph	4	5-10	10-15	7.4				
1249 Aph	4	5-10	10-15	7.4				
1250 Aph	4	5-10	10-15	7.4				
1251 Aph	4	5-10	10-15	7.4				
1252 Aph	4	5-10	10-15	7.4				
1253 Aph	4	5-10	10-15	7.4				
1254 Aph	4	5-10	10-15	7.4				
1255 Aph	4	5-10	10-15	7.4				
1256 Aph	4	5-10	10-15	7.4				
1257 Aph	4	5-10	10-15	7.4				
1258 Aph	4	5-10	10-15	7.4				
1259 Aph	4	5-10	10-15	7.4				
1260 Aph	4	5-10	10-15	7.4				
1261 Aph	4	5-10	10-15	7.4				
1262 Aph	4	5-10	10-15	7.4				
1263 Aph	4	5-10	10-15	7.4				
1264 Aph	4	5-10	10-15	7.4				
1265 Aph	4	5-10	10-15	7.4				
1266 Aph	4	5-10	10-15	7.4				
1267 Aph	4	5-10	10-15	7.4				
1268 Aph	4	5-10	10-15	7.4				
1269 Aph	4	5-10	10-15	7.4				
1270 Aph	4	5-10	10-15	7.4				
1271 Aph	4	5-10	10-15	7.4				
1272 Aph	4	5-10	10-15	7.4				
1273 Aph	4	5-10	10-15	7.4				
1274 Aph	4	5-10	10-15	7.4				
1275 Aph	4	5-10	10-15	7.4				
1276 Aph	4	5-10	10-15	7.4				
1277 Aph	4	5-10	10-15	7.4				
1278 Aph	4	5-10	10-15	7.4				
1279 Aph	4	5-10	10-15	7.4				
1280 Aph	4	5-10	10-15	7.4				
1281 Aph	4	5-10	10-15	7.4				
1282 Aph	4	5-10	10-15	7.4				
1283 Aph	4	5-10	10-15	7.4				
1284 Aph	4	5-10	10-15	7.4				
1285 Aph	4	5-10	10-15	7.4				
1286 Aph	4	5-10	10-15	7.4				
1287 Aph	4	5-10	10-15	7.4				
1288 Aph	4	5-10	10-15	7.4				
1289 Aph	4	5-10	10-15	7.4				
1290 Aph	4	5-10	10-15	7.4				
1291 Aph	4	5-10	10-15	7.4				
1292 Aph	4	5-10	10-15	7.4				
1293 Aph	4	5-10	10-15	7.4				
1294 Aph	4	5-10	10-15	7.4				
1295 Aph	4	5-10	10-15	7.4				
1296 Aph	4	5-10	10-15	7.4				
1297 Aph	4	5-10	10-15	7.4				
1298 Aph	4	5-10	10-15	7.4				
1299 Aph	4	5-10	10-15	7.4				
1300 Aph	4	5-10	10-15	7.4				

TABLE 17. CHEMICAL PROPERTIES OF THE ~~XXXXXXXXXX~~

Map symbol and soil name	Depth	Clay	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq 100g	pH	Pct	Pct	mmhos/cm	
449 Lorton								
		15 15 5						
		20 20 10						
450 Harrison								
		15 15 15						
		27 15 45						
451 Hawkins								
		17 17 17						
		15 27 13						
		15 15 15						
452 Hawkins								
453 Hawkins								
454 Hawkins								
455 Hawkins								
456 Hawkins								
457 Hawkins								
458 Hawkins								
459 Hawkins								
460 Hawkins								
461 Hawkins								
462 Hawkins								
463 Hawkins								
464 Hawkins								
465 Hawkins								
466 Hawkins								
467 Hawkins								
468 Hawkins								
469 Hawkins								
470 Hawkins								
471 Hawkins								
472 Hawkins								
473 Hawkins								
474 Hawkins								
475 Hawkins								
476 Hawkins								
477 Hawkins								
478 Hawkins								
479 Hawkins								
480 Hawkins								
481 Hawkins								
482 Hawkins								
483 Hawkins								
484 Hawkins								
485 Hawkins								
486 Hawkins								
487 Hawkins								
488 Hawkins								
489 Hawkins								
490 Hawkins								
491 Hawkins								
492 Hawkins								
493 Hawkins								
494 Hawkins								
495 Hawkins								
496 Hawkins								
497 Hawkins								
498 Hawkins								
499 Hawkins								
500 Hawkins								

TABLE CRITICAL PROPERTIES OF THE SOILS -Continued

Map symbol and soil name	Depth In	Clay Pct	Cation- exchange capacity meq 100g	Soil reaction pH	Calcium carbonate Pct	Gypsum Pct	Salinity meqhos/cm	Sodium adsorption ratio
25 apposa	0-4	5	15	8.5	0	0	0	0
26 Hs 1-2 amp	0-4	5	15	8.5	0	0	0	0
27 Hs 1-2-3	0-4	5	15	8.5	0	0	0	0
28 Hs 1-2-4	0-4	5	15	8.5	0	0	0	0
29 Hs 1-2-5	0-4	5	15	8.5	0	0	0	0
30 Hs 1-2-6	0-4	5	15	8.5	0	0	0	0
31 Hs 1-2-7	0-4	5	15	8.5	0	0	0	0
32 Hs 1-2-8	0-4	5	15	8.5	0	0	0	0
33 Hs 1-2-9	0-4	5	15	8.5	0	0	0	0
34 Hs 1-2-10	0-4	5	15	8.5	0	0	0	0
35 Hs 1-2-11	0-4	5	15	8.5	0	0	0	0
36 Hs 1-2-12	0-4	5	15	8.5	0	0	0	0
37 Hs 1-2-13	0-4	5	15	8.5	0	0	0	0
38 Hs 1-2-14	0-4	5	15	8.5	0	0	0	0
39 Hs 1-2-15	0-4	5	15	8.5	0	0	0	0
40 Hs 1-2-16	0-4	5	15	8.5	0	0	0	0
41 Hs 1-2-17	0-4	5	15	8.5	0	0	0	0
42 Hs 1-2-18	0-4	5	15	8.5	0	0	0	0
43 Hs 1-2-19	0-4	5	15	8.5	0	0	0	0
44 Hs 1-2-20	0-4	5	15	8.5	0	0	0	0
45 Hs 1-2-21	0-4	5	15	8.5	0	0	0	0
46 Hs 1-2-22	0-4	5	15	8.5	0	0	0	0
47 Hs 1-2-23	0-4	5	15	8.5	0	0	0	0
48 Hs 1-2-24	0-4	5	15	8.5	0	0	0	0
49 Hs 1-2-25	0-4	5	15	8.5	0	0	0	0
50 Hs 1-2-26	0-4	5	15	8.5	0	0	0	0
51 Hs 1-2-27	0-4	5	15	8.5	0	0	0	0
52 Hs 1-2-28	0-4	5	15	8.5	0	0	0	0
53 Hs 1-2-29	0-4	5	15	8.5	0	0	0	0
54 Hs 1-2-30	0-4	5	15	8.5	0	0	0	0
55 Hs 1-2-31	0-4	5	15	8.5	0	0	0	0
56 Hs 1-2-32	0-4	5	15	8.5	0	0	0	0
57 Hs 1-2-33	0-4	5	15	8.5	0	0	0	0
58 Hs 1-2-34	0-4	5	15	8.5	0	0	0	0
59 Hs 1-2-35	0-4	5	15	8.5	0	0	0	0
60 Hs 1-2-36	0-4	5	15	8.5	0	0	0	0
61 Hs 1-2-37	0-4	5	15	8.5	0	0	0	0
62 Hs 1-2-38	0-4	5	15	8.5	0	0	0	0
63 Hs 1-2-39	0-4	5	15	8.5	0	0	0	0
64 Hs 1-2-40	0-4	5	15	8.5	0	0	0	0
65 Hs 1-2-41	0-4	5	15	8.5	0	0	0	0
66 Hs 1-2-42	0-4	5	15	8.5	0	0	0	0
67 Hs 1-2-43	0-4	5	15	8.5	0	0	0	0
68 Hs 1-2-44	0-4	5	15	8.5	0	0	0	0
69 Hs 1-2-45	0-4	5	15	8.5	0	0	0	0
70 Hs 1-2-46	0-4	5	15	8.5	0	0	0	0
71 Hs 1-2-47	0-4	5	15	8.5	0	0	0	0
72 Hs 1-2-48	0-4	5	15	8.5	0	0	0	0
73 Hs 1-2-49	0-4	5	15	8.5	0	0	0	0
74 Hs 1-2-50	0-4	5	15	8.5	0	0	0	0
75 Hs 1-2-51	0-4	5	15	8.5	0	0	0	0
76 Hs 1-2-52	0-4	5	15	8.5	0	0	0	0
77 Hs 1-2-53	0-4	5	15	8.5	0	0	0	0
78 Hs 1-2-54	0-4	5	15	8.5	0	0	0	0
79 Hs 1-2-55	0-4	5	15	8.5	0	0	0	0
80 Hs 1-2-56	0-4	5	15	8.5	0	0	0	0
81 Hs 1-2-57	0-4	5	15	8.5	0	0	0	0
82 Hs 1-2-58	0-4	5	15	8.5	0	0	0	0
83 Hs 1-2-59	0-4	5	15	8.5	0	0	0	0
84 Hs 1-2-60	0-4	5	15	8.5	0	0	0	0
85 Hs 1-2-61	0-4	5	15	8.5	0	0	0	0
86 Hs 1-2-62	0-4	5	15	8.5	0	0	0	0
87 Hs 1-2-63	0-4	5	15	8.5	0	0	0	0
88 Hs 1-2-64	0-4	5	15	8.5	0	0	0	0
89 Hs 1-2-65	0-4	5	15	8.5	0	0	0	0
90 Hs 1-2-66	0-4	5	15	8.5	0	0	0	0
91 Hs 1-2-67	0-4	5	15	8.5	0	0	0	0
92 Hs 1-2-68	0-4	5	15	8.5	0	0	0	0
93 Hs 1-2-69	0-4	5	15	8.5	0	0	0	0
94 Hs 1-2-70	0-4	5	15	8.5	0	0	0	0
95 Hs 1-2-71	0-4	5	15	8.5	0	0	0	0
96 Hs 1-2-72	0-4	5	15	8.5	0	0	0	0
97 Hs 1-2-73	0-4	5	15	8.5	0	0	0	0
98 Hs 1-2-74	0-4	5	15	8.5	0	0	0	0
99 Hs 1-2-75	0-4	5	15	8.5	0	0	0	0
100 Hs 1-2-76	0-4	5	15	8.5	0	0	0	0

[illegible][illegible]

TABLE 17. CHEMICAL PROPERTIES OF THE SOILS Continued

Map symbol and soil name	Depth in	% Pct	exchange capacity meq 100g	reaction pH	carbonate Pct	gypsum Pct	Fe mg/kg	sodium adsorption ratio
Ash	0-10	4	4	4	4	4	4	4
Ash	10-20	4	4	4	4	4	4	4
Ash	20-30	4	4	4	4	4	4	4
Ash	30-40	4	4	4	4	4	4	4
Ash	40-50	4	4	4	4	4	4	4
Ash	50-60	4	4	4	4	4	4	4
Ash	60-70	4	4	4	4	4	4	4
Ash	70-80	4	4	4	4	4	4	4
Ash	80-90	4	4	4	4	4	4	4
Ash	90-100	4	4	4	4	4	4	4
Ash	100-110	4	4	4	4	4	4	4
Ash	110-120	4	4	4	4	4	4	4
Ash	120-130	4	4	4	4	4	4	4
Ash	130-140	4	4	4	4	4	4	4
Ash	140-150	4	4	4	4	4	4	4
Ash	150-160	4	4	4	4	4	4	4
Ash	160-170	4	4	4	4	4	4	4
Ash	170-180	4	4	4	4	4	4	4
Ash	180-190	4	4	4	4	4	4	4
Ash	190-200	4	4	4	4	4	4	4
Ash	200-210	4	4	4	4	4	4	4
Ash	210-220	4	4	4	4	4	4	4
Ash	220-230	4	4	4	4	4	4	4
Ash	230-240	4	4	4	4	4	4	4
Ash	240-250	4	4	4	4	4	4	4
Ash	250-260	4	4	4	4	4	4	4
Ash	260-270	4	4	4	4	4	4	4
Ash	270-280	4	4	4	4	4	4	4
Ash	280-290	4	4	4	4	4	4	4
Ash	290-300	4	4	4	4	4	4	4
Ash	300-310	4	4	4	4	4	4	4
Ash	310-320	4	4	4	4	4	4	4
Ash	320-330	4	4	4	4	4	4	4
Ash	330-340	4	4	4	4	4	4	4
Ash	340-350	4	4	4	4	4	4	4
Ash	350-360	4	4	4	4	4	4	4
Ash	360-370	4	4	4	4	4	4	4
Ash	370-380	4	4	4	4	4	4	4
Ash	380-390	4	4	4	4	4	4	4
Ash	390-400	4	4	4	4	4	4	4
Ash	400-410	4	4	4	4	4	4	4
Ash	410-420	4	4	4	4	4	4	4
Ash	420-430	4	4	4	4	4	4	4
Ash	430-440	4	4	4	4	4	4	4
Ash	440-450	4	4	4	4	4	4	4
Ash	450-460	4	4	4	4	4	4	4
Ash	460-470	4	4	4	4	4	4	4
Ash	470-480	4	4	4	4	4	4	4
Ash	480-490	4	4	4	4	4	4	4
Ash	490-500	4	4	4	4	4	4	4
Ash	500-510	4	4	4	4	4	4	4
Ash	510-520	4	4	4	4	4	4	4
Ash	520-530	4	4	4	4	4	4	4
Ash	530-540	4	4	4	4	4	4	4
Ash	540-550	4	4	4	4	4	4	4
Ash	550-560	4	4	4	4	4	4	4
Ash	560-570	4	4	4	4	4	4	4
Ash	570-580	4	4	4	4	4	4	4
Ash	580-590	4	4	4	4	4	4	4
Ash	590-600	4	4	4	4	4	4	4
Ash	600-610	4	4	4	4	4	4	4
Ash	610-620	4	4	4	4	4	4	4
Ash	620-630	4	4	4	4	4	4	4
Ash	630-640	4	4	4	4	4	4	4
Ash	640-650	4	4	4	4	4	4	4
Ash	650-660	4	4	4	4	4	4	4
Ash	660-670	4	4	4	4	4	4	4
Ash	670-680	4	4	4	4	4	4	4
Ash	680-690	4	4	4	4	4	4	4
Ash	690-700	4	4	4	4	4	4	4
Ash	700-710	4	4	4	4	4	4	4
Ash	710-720	4	4	4	4	4	4	4
Ash	720-730	4	4	4	4	4	4	4
Ash	730-740	4	4	4	4	4	4	4
Ash	740-750	4	4	4	4	4	4	4
Ash	750-760	4	4	4	4	4	4	4
Ash	760-770	4	4	4	4	4	4	4
Ash	770-780	4	4	4	4	4	4	4
Ash	780-790	4	4	4	4	4	4	4
Ash	790-800	4	4	4	4	4	4	4
Ash	800-810	4	4	4	4	4	4	4
Ash	810-820	4	4	4	4	4	4	4
Ash	820-830	4	4	4	4	4	4	4
Ash	830-840	4	4	4	4	4	4	4
Ash	840-850	4	4	4	4	4	4	4
Ash	850-860	4	4	4	4	4	4	4
Ash	860-870	4	4	4	4	4	4	4
Ash	870-880	4	4	4	4	4	4	4
Ash	880-890	4	4	4	4	4	4	4
Ash	890-900	4	4	4	4	4	4	4
Ash	900-910	4	4	4	4	4	4	4
Ash	910-920	4	4	4	4	4	4	4
Ash	920-930	4	4	4	4	4	4	4
Ash	930-940	4	4	4	4	4	4	4
Ash	940-950	4	4	4	4	4	4	4
Ash	950-960	4	4	4	4	4	4	4
Ash	960-970	4	4	4	4	4	4	4
Ash	970-980	4	4	4	4	4	4	4
Ash	980-990	4	4	4	4	4	4	4
Ash	990-1000	4	4	4	4	4	4	4

TABLE 1. Soil Survey Data

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Organic matter	Sodium adsorption ratio
	ft.	per cent	meq. 100g.	pH	per cent	per cent	
1.0							
1.1							
1.2							
1.3							
1.4							
1.5							
1.6							
1.7							
1.8							
1.9							
2.0							
2.1							
2.2							
2.3							
2.4							
2.5							
2.6							
2.7							
2.8							
2.9							
3.0							
3.1							
3.2							
3.3							
3.4							
3.5							
3.6							
3.7							
3.8							
3.9							
4.0							
4.1							
4.2							
4.3							
4.4							
4.5							
4.6							
4.7							
4.8							
4.9							
5.0							
5.1							
5.2							
5.3							
5.4							
5.5							
5.6							
5.7							
5.8							
5.9							
6.0							
6.1							
6.2							
6.3							
6.4							
6.5							
6.6							
6.7							
6.8							
6.9							
7.0							
7.1							
7.2							
7.3							
7.4							
7.5							
7.6							
7.7							
7.8							
7.9							
8.0							
8.1							
8.2							
8.3							
8.4							
8.5							
8.6							
8.7							
8.8							
8.9							
9.0							
9.1							
9.2							
9.3							
9.4							
9.5							
9.6							
9.7							
9.8							
9.9							
10.0							

TABLE 1. Vertical profile of soil properties

Map symbol and soil name	Depth	Clay	Cation	Soil	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	aa	ab	ac	ad	ae	af	ag	ah	ai	aj	ak	al	am	an	ao	ap	aq	ar	as	at	au	av	aw	ax	ay	az	ba	bb	bc	bd	be	bf	bg	bh	bi	bj	bk	bl	bm	bn	bo	bp	bq	br	bs	bt	bu	bv	bw	bx	by	bz	ca	cb	cc	cd	ce	cf	cg	ch	ci	cj	ck	cl	cm	cn	co	cp	cq	cr	cs	ct	cu	cv	cw	cx	cy	cz	da	db	dc	dd	de	df	dg	dh	di	dj	dk	dl	dm	dn	do	dp	dq	dr	ds	dt	du	dv	dw	dx	dy	dz	ea	eb	ec	ed	ee	ef	eg	eh	ei	ej	ek	el	em	en	eo	ep	eq	er	es	et	eu	ev	ew	ex	ey	ez	fa	fb	fc	fd	fe	ff	fg	fh	fi	fj	fk	fl	fm	fn	fo	fp	fq	fr	fs	ft	fu	fv	fw	fx	fy	fz	ga	gb	gc	gd	ge	gf	gg	gh	gi	gj	gk	gl	gm	gn	go	gp	gq	gr	gs	gt	gu	gv	gw	gx	gy	gz	ha	hb	hc	hd	he	hf	hg	hh	hi	hj	hk	hl	hm	hn	ho	hp	hq	hr	hs	ht	hu	hv	hw	hx	hy	hz	ia	ib	ic	id	ie	if	ig	ih	ii	ij	ik	il	im	in	io	ip	iq	ir	is	it	iu	iv	iw	ix	iy	iz	ja	jb	jc	jd	je	jf	jg	jh	ji	jj	jk	jl	jm	jn	jo	jp	jq	jr	js	jt	ju	jv	jw	jx	ky	kz	la	lb	lc	ld	le	lf	lg	lh	li	lj	lk	ll	lm	ln	lo	lp	lq	lr	ls	lt	lu	lv	lw	lx	ly	lz	ma	mb	mc	md	me	mf	mg	mh	mi	mj	mk	ml	mm	mn	mo	mp	mq	mr	ms	mt	mu	mv	mw	mx	my	mz	na	nb	nc	nd	ne	nf	ng	nh	ni	nj	nk	nl	nm	nn	no	np	nq	nr	ns	nt	nu	nv	nw	nx	ny	nz	oa	ob	oc	od	oe	of	og	oh	oi	oj	ok	ol	om	on	oo	op	oq	or	os	ot	ou	ov	ow	ox	oy	oz	pa	pb	pc	pd	pe	pf	pg	ph	pi	pj	pk	pl	pm	pn	po	pp	pq	pr	ps	pt	pu	pv	pw	px	py	pz	qa	qb	qc	qd	qe	qf	qg	qh	qi	qj	qk	ql	qm	qn	qo	qp	qq	qr	qs	qt	qu	qv	qw	qx	qy	qz	ra	rb	rc	rd	re	rf	rg	rh	ri	rj	rk	rl	rm	rn	ro	rp	rq	rr	rs	rt	ru	rv	rw	rx	ry	rz	sa	sb	sc	sd	se	sf	sg	sh	si	sj	sk	sl	sm	sn	so	sp	sq	sr	ss	st	su	sv	sw	sx	sy	sz	ta	tb	tc	td	te	tf	tg	th	ti	tj	tk	tl	tm	tn	to	tp	tq	tr	ts	tt	tu	tv	tw	tx	ty	tz	ua	ub	uc	ud	ue	uf	ug	uh	ui	uj	uk	ul	um	un	uo	up	uq	ur	us	ut	uu	uv	uw	ux	uy	uz	va	vb	vc	vd	ve	vf	vg	vh	vi	vj	vk	vl	vm	vn	vo	vp	vq	vr	vs	vt	vu	vv	vw	vx	vy	vz	wa	wb	wc	wd	we	wf	wg	wh	wi	wj	wk	wl	wm	wn	wo	wp	wq	wr	ws	wt	wu	wv	ww	wx	wy	wz	xa	xb	xc	xd	xe	xf	yg	yh	yi	yj	yk	yl	ym	yn	yo	yp	yq	yr	ys	yt	yu	yv	yw	yx	yy	yz	za	zb	zc	zd	ze	zf	zg	zh	zi	zj	zk	zl	zm	zn	zo	zp	zq	zr	zs	zt	zu	zv	zw	zx	zy	zz
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TABLE 17. CHEMICAL PROPERTIES OF THE SOILS -Continued

Map symbol and soil name	Depth	Clay	Cation exchange capacity	Soil reaction	Calcium carbonate	Oxygen	Salinity	Sodium adsorption ratio
	I	P. V.	meq/100g	pH	%	%	meq/100g	
44 dunghorn h	0-4	14 40 45 0 35 0	4 8 3	6.6-7.3	---	---	---	---
45 sandy sil	0-4	21 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
46 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
47 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
48 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
49 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
50 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
51 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
52 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
53 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
54 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
55 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
56 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
57 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
58 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
59 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
60 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
61 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
62 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
63 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
64 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
65 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
66 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
67 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
68 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
69 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
70 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
71 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
72 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
73 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
74 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
75 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
76 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
77 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
78 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
79 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
80 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
81 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
82 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
83 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
84 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
85 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
86 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
87 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
88 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
89 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
90 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
91 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
92 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
93 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
94 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
95 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
96 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
97 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
98 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
99 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---
100 sandy sil	0-4	11 18 35 0 35 0	4 8 3	6.6-7.3	---	---	---	---

TABLE 17 --CHEMICAL PROPERTIES OF THE SOILS-- Continued

Map symbol and soil name	Depth	pH	Acid extraction	Acid neutralizing capacity	Organic acids	Organic acids	Organic acids	Organic acids
9902, 1000 1 Rubble land	0-10	5.5	0.5	0.5	0.5	0.5	0.5	0.5

TABLE 1. WATER FEATURES

Map symbol and name	Hydro- logic group	Flooding			High water table and ponding					Maximum ponding depth ft
		Frequency	Duration	Months	Water table depth ft	Kind of water table	Months	Ponding duration		
1011 Meyers		None			1-1	Apparent	Nov-May			
1012 Boulder Lake	1	None			1	Perched	Dec-Jun	Brief	1.0	
1013 Meyers		None			1-1	Apparent	Dec-May			
1014 Meyers	1	None			1-1	Apparent	Dec-May			
1015 Meyers	1	None			1					
1016 Meyers		None			1-1					
1017 Meyers	1	None			1					
1020 Meyers	1	None			1					
1021 Meyers	1	None			1-1	Apparent	Nov-Jun			
1022 Meyers	1	None			1-1					
1023 Meyers	1	None			1-1					
1024 Meyers	1	None			1-1					
1025 Meyers	1	None			1-1					
1026 Meyers	1	None			1-1					
1027 Meyers	1	None			1-1					
1028 Meyers	1	None			1-1					
1029 Meyers	1	None			1-1					
1030 Meyers	1	None			1-1					
1031 Meyers	1	None			1-1					
1032 Meyers	1	None			1-1					
1033 Meyers	1	None			1-1					
1034 Meyers	1	None			1-1					
1035 Meyers	1	None			1-1					
1036 Meyers	1	None			1-1					
1037 Meyers	1	None			1-1					
1038 Meyers	1	None			1-1					
1039 Meyers	1	None			1-1					
1040 Langston	1	None			1-1					
1041 Langston	1	None			1-1					
1042 Old Camp	1	None			1-1					
1043 Paypoint	1	None			1-1					
1045 Paypoint	1	None			1-1					
1046 Langston	1	None			1-1					
1050 Skulawak	1	Frequent	Brief	Jan-Dec	1-3-6	Artesian	Jan-Dec			
1055 Devada	1	None			1-1					

TABLE 2. WATER FEATURES--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table and ponding					Maximum ponding depth ft
		Frequency	Duration	Months	Water table depth ft	Kind of water table	Months	Ponding duration		
1105 Pinebrook	C	None	---	---	14 0	---	---	---	---	
1106 Quartz Creek	A	None	---	---	14 0	---	---	---	---	
1107 Hoffman	A	None	---	---	14 0	---	---	---	---	
1108 L. P. Hill	A	None	---	---	10 1 0	Perched	Mar-Jun	---	---	
1109 Henderson	A	None	---	---	14 0	---	---	---	---	
1110 Henderson	A	Rare	---	---	14 0	---	---	---	---	
1111 Henderson	B	None	---	---	14 0	---	---	---	---	
1112 Henderson	D	None	---	---	14 0	---	---	---	---	
1113 Henderson	D	None	---	---	14 0	---	---	---	---	
1114 Henderson	C	None	---	---	14 0	---	---	---	---	
1115 Henderson	A	None	---	---	14 0	---	---	---	---	
1116 Henderson	B	None	---	---	14 0	---	---	---	---	
1117 Henderson	D	None	---	---	14 0	---	---	---	---	
1118 Henderson	B	None	---	---	14 0	---	---	---	---	
1119 Henderson	D	None	---	---	14 0	---	---	---	---	
1140 Valley	B	Occasional	---	Feb-Jul	14 0	---	---	---	---	
1141 Valley	B	None	---	---	14 0	---	---	---	---	
Langston	B	None	---	---	14 0	---	---	---	---	
Paypoint	B	None	---	---	14 0	---	---	---	---	
1145 Henderson	C	Rare	---	---	2 5-5 0	Apparent	Feb-Jul	---	---	
1150 Sageph	D	None	---	---	14 0	---	---	---	---	
Hangrock	D	None	---	---	14 0	---	---	---	---	
Tuffo	D	None	---	---	14 0	---	---	---	---	

TABLE 1. WATER PRAIRIES (Continued)

Map symbol and soil name	Hydro- logic group	Flooding			High water table and ponding				Maximum ponding depth ft.
		Frequency	Duration	Months	Water table depth ft.	Kind of water table	Months	Ponding duration	
1152 Garragh	D	None	---	---	>5.0	---	---	---	---
Tuffe	D	None	---	---	>5.0	---	---	---	---
Yonahville	B	Rare	---	---	>5.0	---	---	---	---
1154 Malden	D	None	---	---	>5.0	---	---	---	---
Newton	D	None	---	---	>5.0	---	---	---	---
1155 W...	D	None	---	---	>5.0	---	---	---	---
Bucklake	C	None	---	---	>5.0	---	---	---	---
Bucklake		None	---	---	>5.0	---	---	---	---
1156 Devada	D	None	---	---	>5.0	---	---	---	---
1157 Devada	D	None	---	---	>5.0	---	---	---	---
1158 Devada	D	None	---	---	>5.0	---	---	---	---
1159 Devada	D	None	---	---	>5.0	---	---	---	---
1160 Devada	D	None	---	---	>5.0	---	---	---	---
1161 Devada	D	None	---	---	>5.0	---	---	---	---
1162 Devada	D	None	---	---	>5.0	---	---	---	---
1163 Devada	D	None	---	---	>5.0	---	---	---	---
1164 Devada	D	None	---	---	>5.0	---	---	---	---
1165 Devada	D	None	---	---	>5.0	---	---	---	---
1166 Devada	D	None	---	---	>5.0	---	---	---	---
1167 Devada	D	None	---	---	>5.0	---	---	---	---
1168 Devada	D	None	---	---	>5.0	---	---	---	---
1169 Devada	D	None	---	---	>5.0	---	---	---	---
1170 Devada	D	None	---	---	>5.0	---	---	---	---
Bucklake		None	---	---	>5.0	---	---	---	---

TABLE 1. NESTS FEATHERED (Continued)

[illegible]

TABLE 15 WATER FEATURES -Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth Ft	Kind of water table	Months	Flooding duration	Maximum ponding depth Ft
22 Camp	C	None	---	---	>6.0	---	---	---	---
23 Camp	C	None	---	---	>6.0	---	---	---	---
24 Camp	C	None	---	---	>6.0	---	---	---	---
25 Camp	C	None	---	---	>6.0	---	---	---	---
26 Camp	C	None	---	---	>6.0	---	---	---	---
27 Camp	C	None	---	---	>6.0	---	---	---	---
28 Camp	C	None	---	---	>6.0	---	---	---	---
29 Camp	C	None	---	---	>6.0	---	---	---	---
30 Camp	C	None	---	---	>6.0	---	---	---	---
31 Camp	C	None	---	---	>6.0	---	---	---	---
32 Camp	C	None	---	---	>6.0	---	---	---	---
33 Camp	C	None	---	---	>6.0	---	---	---	---
34 Camp	C	None	---	---	>6.0	---	---	---	---
35 Camp	C	None	---	---	>6.0	---	---	---	---
36 Camp	C	None	---	---	>6.0	---	---	---	---
37 Camp	C	None	---	---	>6.0	---	---	---	---
38 Camp	C	None	---	---	>6.0	---	---	---	---
39 Camp	C	None	---	---	>6.0	---	---	---	---
40 Camp	C	None	---	---	>6.0	---	---	---	---
41 Camp	C	None	---	---	>6.0	---	---	---	---
42 Camp	C	None	---	---	>6.0	---	---	---	---
43 Camp	C	None	---	---	>6.0	---	---	---	---
44 Camp	C	None	---	---	>6.0	---	---	---	---
45 Camp	C	None	---	---	>6.0	---	---	---	---
46 Camp	C	None	---	---	>6.0	---	---	---	---
47 Camp	C	None	---	---	>6.0	---	---	---	---
48 Camp	C	None	---	---	>6.0	---	---	---	---
49 Camp	C	None	---	---	>6.0	---	---	---	---
50 Camp	C	None	---	---	>6.0	---	---	---	---
51 Camp	C	None	---	---	>6.0	---	---	---	---
52 Camp	C	None	---	---	>6.0	---	---	---	---
53 Camp	C	None	---	---	>6.0	---	---	---	---
54 Camp	C	None	---	---	>6.0	---	---	---	---
55 Camp	C	None	---	---	>6.0	---	---	---	---
56 Camp	C	None	---	---	>6.0	---	---	---	---
57 Camp	C	None	---	---	>6.0	---	---	---	---
58 Camp	C	None	---	---	>6.0	---	---	---	---
59 Camp	C	None	---	---	>6.0	---	---	---	---
60 Camp	C	None	---	---	>6.0	---	---	---	---
61 Camp	C	None	---	---	>6.0	---	---	---	---
62 Camp	C	None	---	---	>6.0	---	---	---	---
63 Camp	C	None	---	---	>6.0	---	---	---	---
64 Camp	C	None	---	---	>6.0	---	---	---	---
65 Camp	C	None	---	---	>6.0	---	---	---	---
66 Camp	C	None	---	---	>6.0	---	---	---	---
67 Camp	C	None	---	---	>6.0	---	---	---	---
68 Camp	C	None	---	---	>6.0	---	---	---	---
69 Camp	C	None	---	---	>6.0	---	---	---	---
70 Camp	C	None	---	---	>6.0	---	---	---	---
71 Camp	C	None	---	---	>6.0	---	---	---	---
72 Camp	C	None	---	---	>6.0	---	---	---	---
73 Camp	C	None	---	---	>6.0	---	---	---	---
74 Camp	C	None	---	---	>6.0	---	---	---	---
75 Camp	C	None	---	---	>6.0	---	---	---	---
76 Camp	C	None	---	---	>6.0	---	---	---	---
77 Camp	C	None	---	---	>6.0	---	---	---	---
78 Camp	C	None	---	---	>6.0	---	---	---	---
79 Camp	C	None	---	---	>6.0	---	---	---	---
80 Camp	C	None	---	---	>6.0	---	---	---	---
81 Camp	C	None	---	---	>6.0	---	---	---	---
82 Camp	C	None	---	---	>6.0	---	---	---	---
83 Camp	C	None	---	---	>6.0	---	---	---	---
84 Camp	C	None	---	---	>6.0	---	---	---	---
85 Camp	C	None	---	---	>6.0	---	---	---	---
86 Camp	C	None	---	---	>6.0	---	---	---	---
87 Camp	C	None	---	---	>6.0	---	---	---	---
88 Camp	C	None	---	---	>6.0	---	---	---	---
89 Camp	C	None	---	---	>6.0	---	---	---	---
90 Camp	C	None	---	---	>6.0	---	---	---	---
91 Camp	C	None	---	---	>6.0	---	---	---	---
92 Camp	C	None	---	---	>6.0	---	---	---	---
93 Camp	C	None	---	---	>6.0	---	---	---	---
94 Camp	C	None	---	---	>6.0	---	---	---	---
95 Camp	C	None	---	---	>6.0	---	---	---	---
96 Camp	C	None	---	---	>6.0	---	---	---	---
97 Camp	C	None	---	---	>6.0	---	---	---	---
98 Camp	C	None	---	---	>6.0	---	---	---	---
99 Camp	C	None	---	---	>6.0	---	---	---	---
100 Camp	C	None	---	---	>6.0	---	---	---	---

APPENDIX 1.6 WATER TABLE DATA

Map number and name	Sheet number	Flooded		Major road	Water table depth ft	High water table and ponding			
		Frequency	Area			Kind of water table	Months	Ponding duration	Maximum ponding depth ft
125 New side	B	None	---	---	>6.0	---	---	---	-
Stagwood	B	None	---	---	>6.0	---	---	---	-
126 New side	B	None	++	---	>6.0	---	---	---	---
Halfway amp		None	---	-	>6.0	---	---	---	-
Halfway	B	None							
127 Fitzwater	B	None							
Map 127A		None							
128 New side	B	None	++	---	>6.0	---	---	---	-
129 New side	B	None	---	---	>6.0	---	---	---	-
New side	B	None	---	---	>6.0	---	---	---	-
130 New side	B	None	---	---	>6.0	---	---	-	
North Outcrop---		None	---	---	>6.0	---	---	---	-
131 New side	B	None	---	---	>6.0	---	---	---	-
Map 131A	B	None							
132 New side		None	---	---	>6.0	---	---	---	-
133 New side		None	---	---	>6.0	---	---	---	-
Map 133A		None							
134 New side		None	---	---	>6.0	---	---	---	-
Map 134A		None							
135 New side		None	---	---	>6.0	---	---	---	-
Map 135A		None							
136 New side		None	---	---	>6.0	---	---	---	-
Map 136A		None							
137 New side		None	---	---	>6.0	---	---	---	-
Map 137A		None							
138 New side		None	---	---	>6.0	---	---	---	-
Map 138A		None							
139 New side		None	---	---	>6.0	---	---	---	-
Map 139A		None							
140 New side		None	---	---	>6.0	---	---	---	-
Map 140A		None							

TABLE 12 - WATER FEATURES Continued

Map symbol and soil name	Map logscale	Flooding			High water table and ponding					Maximum ponding depth
		Frequency	Duration	Months	High water table depth	Kind of water table	Months	Ponding duration		
									Ft.	
1298 (con.) Weathered	C	None	---	---	16.0	---	---	---	---	
1299 Weathered	C	None	---	---	16.0	---	---	---	---	
1300 Red soil creek		None			---					
1301 Longditch		None			---					
1302 Longditch		None			---					
1303 Longditch		None			4.0		---	---	---	
1304 Longditch		None			16.0		---		---	
1305 Longditch		None			16.0		---		---	
1306 Longditch		None			16.0		---		---	
1307 Longditch		None			16.0		---		---	
1308 Longditch		None			16.0		---		---	
1309 Longditch		None			16.0		---		---	
1310 Longditch		None			16.0		---		---	
1311 Longditch		None			16.0		---		---	
1312 Longditch		None			16.0		---		---	
1313 Longditch		None			16.0		---		---	
1314 Longditch		None			16.0		---		---	
1315 Longditch		None			16.0		---		---	
1316 Longditch		None			16.0		---		---	
1317 Longditch		None			16.0		---		---	
1318 Longditch		None			16.0		---		---	
1319 Longditch		None			16.0		---		---	
1320 Longditch		None			16.0		---		---	
1321 Longditch		None			16.0		---		---	
1322 Longditch		None			16.0		---		---	
1323 Longditch		None			16.0		---		---	
1324 Longditch		None			16.0		---		---	
1325 Longditch		None			16.0		---		---	
1326 Longditch		None			16.0		---		---	
1327 Longditch		None			16.0		---		---	
1328 Longditch		None			16.0		---		---	
1329 Longditch		None			16.0		---		---	
1330 Longditch		None			16.0		---		---	
1331 Longditch		None			16.0		---		---	
1332 Longditch		None			16.0		---		---	
1333 Longditch		None			16.0		---		---	
1334 Longditch		None			16.0		---		---	
1335 Longditch		None			16.0		---		---	
1336 Longditch		None			16.0		---		---	
1337 Longditch		None			16.0		---		---	
1338 Longditch		None			16.0		---		---	
1339 Longditch		None			16.0		---		---	
1340 Longditch		None			16.0		---		---	
1341 Longditch		None			16.0		---		---	
1342 Longditch		None			16.0		---		---	
1343 Longditch		None			16.0		---		---	
1344 Longditch		None			16.0		---		---	
1345 Longditch		None			16.0		---		---	
1346 Longditch		None			16.0		---		---	
1347 Longditch		None			16.0		---		---	
1348 Longditch		None			16.0		---		---	
1349 Longditch		None			16.0		---		---	
1350 Longditch		None			16.0		---		---	
1351 Longditch		None			16.0		---		---	
1352 Longditch		None			16.0		---		---	
1353 Longditch		None			16.0		---		---	
1354 Longditch		None			16.0		---		---	
1355 Longditch		None			16.0		---		---	
1356 Longditch		None			16.0		---		---	
1357 Longditch		None			16.0		---		---	
1										

TABLE 3. WATER RESOURCES

Map symbol and soil name	Hydro- logic group	Flooded			Key water table and ponding				Maximum ponding depth
		Frequency	Duration	Months	Water table depth ft	Kind of water table	Months	Ponding duration	
130 Keyway		None			1	Apparent	Jan-Sep		
Keyway		None		++	2-3-4	Apparent	Jan-Sep		
131 Keyway		None		+	1	Apparent	Mar-May		
132 Keyway		None							
133 Keyway		None							
134 Keyway		None							
135 Keyway		None							
136 Keyway		None							
137 Keyway		None							
138 Keyway		None							
139 Keyway		None							
140 Keyway		None							
141 Keyway		None							
142 Keyway		None							
143 Keyway		None							
144 Keyway		None							
145 Keyway		None							
146 Keyway		None							
147 Keyway		None							
148 Keyway		None							
149 Keyway		None							
150 Keyway		None							
151 Keyway		None							
152 Keyway		None							
153 Keyway		None							
154 Keyway		None							
155 Keyway		None							
156 Keyway		None							
157 Keyway		None							
158 Keyway		None							
159 Keyway		None							
160 Keyway		None							
161 Keyway		None							
162 Keyway		None							
163 Keyway		None							
164 Keyway		None							
165 Keyway		None							
166 Keyway		None							
167 Keyway		None							
168 Keyway		None							
169 Keyway		None							
170 Keyway		None							
171 Keyway		None							
172 Keyway		None							
173 Keyway		None							
174 Keyway		None							
175 Keyway		None							
176 Keyway		None							
177 Keyway		None							
178 Keyway		None							
179 Keyway		None							
180 Keyway		None							
181 Keyway		None							
182 Keyway		None							
183 Keyway		None							
184 Keyway		None							
185 Keyway		None							
186 Keyway		None							
187 Keyway		None							
188 Keyway		None							
189 Keyway		None							
190 Keyway		None							
191 Keyway		None							
192 Keyway		None							
193 Keyway		None							
194 Keyway		None							
195 Keyway		None							
196 Keyway		None							
197 Keyway		None							
198 Keyway		None							
199 Keyway		None							
200 Keyway		None							

TABLE 2. WATER TABLES (continued)

Map symbol and soil name	Hydro- logic group	Flooding			High water table and ponding				Maximum ponding depth ft.
		Frequency	Duration	Months	Water table depth ft.	Kind of water table	Months	Ponding duration	
1355 Pine-jack pine		None		---	16.0	---	---	---	
1356 Kestrel	B	None			---				
1357 Kestrel	B	None			---				
1358 Badger camp		None		---	16.0				
1359 Kestrel	B	None			---				
1360 Kestrel	B	None			---				
1361 Badger camp		None			---				
1362 Kestrel	B	None			---				
1363 Kestrel		---	---	Mar-Jun	0.0-1.5	Apparent	Nov-Jun	---	
1364 Kestrel		Prep. an.	Long	Jan-May	0.0-1.0	Apparent	Jan-May	---	
1365 Kestrel		---	---	Jan-May	1.0-1.5	Apparent	Jan-May	---	
1366 Kestrel	A	None	---	---	16.0	---	---	---	
1367 Kestrel		None	---	---	16.0	---	---	---	
1368 Kestrel		None	---	---	16.0	---	---	---	
1369 Kestrel		None	---	---	16.0	---	---	---	
1370 Kestrel		None	---	---	16.0	---	---	---	
1371 Kestrel		None	---	---	16.0	---	---	---	
1372 Kestrel	A	None	---	---	16.0	---	---	---	
1373 Kestrel	B	None	---	---	16.0	---	---	---	
1374 Kestrel	C	None	---	---	16.0	---	---	---	
1375 Kestrel	D	None	---	---	16.0	---	---	---	
1376 Kestrel	E	None	---	---	16.0	---	---	---	
1377 Kestrel	F	None	---	---	16.0	---	---	---	
1378 Kestrel	G	None	---	---	16.0	---	---	---	
1379 Kestrel	H	None	---	---	16.0	---	---	---	
1380 Kestrel	I	None	---	---	16.0	---	---	---	
1381 Kestrel	J	None	---	---	16.0	---	---	---	
1382 Kestrel	K	None	---	---	16.0	---	---	---	
1383 Kestrel	L	None	---	---	16.0	---	---	---	
1384 Kestrel	M	None	---	---	16.0	---	---	---	
1385 Kestrel	N	None	---	---	16.0	---	---	---	
1386 Kestrel	O	None	---	---	16.0	---	---	---	
1387 Kestrel	P	None	---	---	16.0	---	---	---	
1388 Kestrel	Q	None	---	---	16.0	---	---	---	
1389 Kestrel	R	None	---	---	16.0	---	---	---	
1390 Kestrel	S	None	---	---	16.0	---	---	---	
1391 Kestrel	T	None	---	---	16.0	---	---	---	
1392 Kestrel	U	None	---	---	16.0	---	---	---	
1393 Kestrel	V	None	---	---	16.0	---	---	---	
1394 Kestrel	W	None	---	---	16.0	---	---	---	
1395 Kestrel	X	None	---	---	16.0	---	---	---	
1396 Kestrel	Y	None	---	---	16.0	---	---	---	
1397 Kestrel	Z	None	---	---	16.0	---	---	---	

AS 3 12 MA 28 FEA 1983 Cor. used

Map symbol and soil name	Hedra logic yz up	Flooding			High water table and ponding					Max max ponding depth Ft
		Frequency	Duration	Months	Water table depth Ft	Kind of water table	Months	Ponding duration		
400 Limestone	D	None	---	---	>4.0	---	---	---	---	
401 Clay	D	None	---	---	>4.0	---	---	---	---	
402 Fuller's earth	D	None	---	---	>4.0	---	---	---	---	
403 Sargassum	D	None	---	---	>4.0	---	---	---	---	
404 Tuffe	D	None	---	---	>4.0	---	---	---	---	
405 Flintstone	D	None	---	---	>4.0	---	---	---	---	
406 Nassau spring	D	None	---	---	>4.0	---	---	---	---	
407 Buller's	D	None	---	---	>4.0	---	---	---	---	
408 Mud	D	None	---	---	>4.0	---	---	---	---	
409 Mud, clay	D	None	---	---	>4.0	---	---	---	---	
410 Grassland	D	None	---	---	>4.0	---	---	---	---	
411 Limestone	D	None	---	---	>4.0	---	---	---	---	
412 Dredge	L	None	---	---	>4.0	---	---	---	---	
413 Tuffe	D	None	---	---	>4.0	---	---	---	---	
414 Herring	A	None	---	---	>4.0	---	---	---	---	
415 Knappe	B	Rare	---	---	5.0-6.0	Apparent	Jan-May	---	---	
416 Mud	D	Frequent	Long	Jan-May	6.0-7.0	Apparent	Jan-May	---	---	
417 Weed	B	Rare	---	---	5.0-6.0	Apparent	Jan-May	---	---	
418 Mud	D	None	---	---	>4.0	---	---	---	---	
419 Playa	D	None	---	---	-1.0-1.0	Apparent	Feb-Sep	Long	1.0	
420 Rock Outcrop	A	None	---	---	>4.0	---	---	---	---	
421 Rubble Land	A	None	---	---	>4.0	---	---	---	---	

TABLE 15. SOIL FEATURES (continued)

Map symbol and soil name	Bedrock		Cemented pan		Subsidence		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Kind	Initial	Total		Uncoated steel	Concrete
1053 (con.) Wart Camp +++++	10-20	Soft	++	---	---	---	Moderate	Moderate	Low
1060 Bombedil- + +	7-16	Hard	---	---	---	---	Moderate	Moderate	Low
China ++++++	20-30	Soft	---	-	---	---	Moderate	High	Low
1061 Old Camp +++++	10-20	Hard	---	---	---	---	Moderate	High	Low
1062 1 mi.	10-20	Hard	---	---	---	---	Moderate	High	Low
1063 1 mi.	12-20	Soft	---	-	---	---	Low	Moderate	Low
1064 1 mi.	---	Hard	---	---	---	---	Moderate	High	Low
1065 1 mi.	---	Hard	---	---	---	---	Moderate	High	Low
Wayne	---	Hard	---	---	---	---	Moderate	Moderate	Low
1066 Black sand	4	Hard	---	---	---	---	None	---	---
1067 1 mi.	4	Hard	---	---	---	---	Moderate	High	Low
1068 1 mi.	4	---	---	---	---	---	Moderate	Moderate	Low
1069 Muckiak	4	Hard	---	---	---	---	Low	Moderate	Low
North outcrop	---	---	---	---	---	---	---	---	---
otta	4	Soft	---	---	---	---	Low	Moderate	Low
1081 Buckskin	4	Hard	---	---	---	---	Low	Moderate	Low
Kiddier	4	Hard	---	---	---	---	Low	High	Low
1083 Buckskin	10-40	Hard	---	---	---	---	Low	Moderate	Low
Hubbs and	4	Hard	---	---	---	---	Low	Moderate	Low
1090 Taylee	4	Hard	---	---	---	---	Moderate	Moderate	Low
Verdugo	10-40	Soft	---	---	---	---	Low	Moderate	Low
1095 Corral	2-2'	Soft	---	---	---	---	Low	Moderate	Low
Mahara	10-4	Soft	---	---	---	---	Low	High	Low
1105 Frederick	20-40	Hard	---	---	---	---	Moderate	High	Low

TABLE 13 SOIL FEATURES Continued

Map symbol and soil name	Bedrock		Cemented pan		Subsidence		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Kind	Initial	Total		Uncoated steel	Concrete
110 Indian Creek	>80	---	14-25	Thick	---	---	Low	High	Low
Ruffalo	>60	---	14-25	Thick			Low	High	Low
111 Lofftus	>80	---	20-40	Thick	-	++	Moderate	High	Low
McMan	>60	---	-	-	---	++	Low	High	High
112 McConnell	>80	---	---	-	---	++	Low	High	Low
113 N	6				---	---	Low	High	Moderate
114 N	24-40	Soft	20-32	Thin	---	---	Low	Low	Low
Langston	7-14	Hard	-	---		---	Moderate	Moderate	Low
Langston	10-40	Hard	-		---	---	Moderate	High	Low
Langston	10-20	Hard	-			-	Moderate	High	Low
115 Langston	10-20	Hard	---	---	---	---	Moderate	High	Low
116 N	4-6	Hard	---	---	---	---	Low	High	Low
117 N	7-9	Hard	---	---	---	---	Moderate	High	Low
118 N	6		---	-	---	---	Low	High	Low
119 N	8		---	---	---	---	Low	High	Low
Langston	6		---	---	---	---	Moderate	High	Low
Parry	6		---	---	---	---	Moderate	High	Low
120 Wendene	>60		---	---	---	---	High	High	High
121 Saraph	14-24	Soft	---	---	---	---	Moderate	High	Low
Langston	>6	---	14-26	Thin	---	---	Low	Moderate	Low
Luffe	4-6	Soft	---	---	---	---	Moderate	Moderate	Low
122 Saraph	4-6	Soft	---	---	---	---	Moderate	High	Low

Map symbol and soil name	Bedrock		Cemented pan		Subsidence		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Find	Init. b.	Total		Uncoated steel	Concrete
	In		In		In	In			
15. Coe Tuffa	4-14	Soft					Moderate	Moderate	Low
" "							High	Moderate	Low
" "							Low	Moderate	Low
" "							Low	Moderate	Low
" "							Low	Moderate	Low
Buckale	20-40	Hard					Low	Moderate	Low
North Dakota									
63 Devada	10-20	Hard					Low	Moderate	Low
" "	4-6	Soft	10-40	Thin			Moderate	Moderate	Low
" "		Hard					Low	Moderate	Low
" "	4	Hard	---	---	-	--	Low	High	Low
" "		Hard			-		Low	Moderate	Low
" "	4	Soft					Low	Moderate	Low
" "		Hard	---	--	-	-	Low	Moderate	Low
" "		Soft	10-40	Thick		-	Moderate	Moderate	Low
" "	4	Hard	-	---	--	--	Moderate	Moderate	Low
" "	12-20	Hard			-		Low	Moderate	Low
Boyer	>80	++	11-15	Thick	---	---	Moderate	High	Low
64 Devada	10-40	Hard	---	---	---	---	Low	Moderate	Low
Ensa		Hard	-	-		-	Moderate	Moderate	Low
" "		Hard	---	---	-	---	Low	Moderate	Low
" "		Hard	-	--	-	-	Low	Moderate	Low
" "	4	Hard	-	---	--	---	Low	Moderate	Low
" "		Hard					Low	Moderate	Low
Indian Creek	>80	---	14-20	Thick	--	--	Low	High	Low

Table 2. 2. FILL TYPE continued

Map symbol and location	Bedrock		Gravel		Silt		Clay	
	Depth	Hardness	Top	Bottom	Top	Bottom	Top	Bottom
1156 Iron								
Crookland	10-14	Hard					Moderate	Moderate
1157								
Wineville	20-30	Hard					Moderate	Low
Tippah	20-4	Hard					Low	Low
West Camp	10-20	Hard					Moderate	Moderate
1158								
Wineville	10-20	Hard					Moderate	Low
Newland	40-50	Hard					Moderate	Moderate
West Camp	10-20	Hard					Moderate	Moderate
1159								
Wineville	10-20	Hard					Moderate	Low
Redgerscamp	14-20	Hard					Moderate	Moderate
1160								
Wineville	14	Hard					Moderate	Moderate
1161								
Wineville	5-10	Hard					Moderate	High
1162								
Wineville	2-4	Hard					Moderate	Moderate
1163								
Wineville	4	Hard					Low	Moderate
1164								
Wineville	4	Hard					Low	Moderate
1165								
Wineville	6	Hard					Low	High
1166								
Wineville	6	Hard					Low	High
1167								
Wineville	6-8	Hard					Low	Moderate
1168								
Wineville	6-8	Hard					Low	High
1169								
Wineville	6-8	Hard					Low	High
1170								
Wineville	6-8	Hard					Low	High
1171								
Wineville	6-8	Hard					Low	High
1172								
Wineville	6-8	Hard					Low	High
1173								
Wineville	6-8	Hard					Low	High
1174								
Wineville	6-8	Hard					Low	High
1175								
Wineville	6-8	Hard					Low	High
1176								
Wineville	6-8	Hard					Low	High
1177								
Wineville	6-8	Hard					Low	High
1178								
Wineville	6-8	Hard					Low	High
1179								
Wineville	6-8	Hard					Low	High
1180								
Wineville	6-8	Hard					Low	High
1181								
Wineville	6-8	Hard					Low	High
1182								
Wineville	6-8	Hard					Low	High
1183								
Wineville	6-8	Hard					Low	High
1184								
Wineville	6-8	Hard					Low	High
1185								
Wineville	6-8	Hard					Low	High
1186								
Wineville	6-8	Hard					Low	High
1187								
Wineville	6-8	Hard					Low	High
1188								
Wineville	6-8	Hard					Low	High
1189								
Wineville	6-8	Hard					Low	High
1190								
Wineville	6-8	Hard					Low	High
1191								
Wineville	6-8	Hard					Low	High
1192								
Wineville	6-8	Hard					Low	High
1193								
Wineville	6-8	Hard					Low	High
1194								
Wineville	6-8	Hard					Low	High
1195								
Wineville	6-8	Hard					Low	High
1196								
Wineville	6-8	Hard					Low	High
1197								
Wineville	6-8	Hard					Low	High
1198								
Wineville	6-8	Hard					Low	High
1199								
Wineville	6-8	Hard					Low	High
1200								
Wineville	6-8	Hard					Low	High

WAB 7 3 2' 9 08A¹ 7E 17-08J

Map symbol and soil name	Redrock		assorted gran		metre		Potential fertilization	Risk of corrosion	
	Depth	Hardness	depth	fertil	metre	metre		Corrosion level	Notes
103 61	4						Low	High	Low
Karima	4						Low	High	Low
1256 Newlands	40 60	Hard					Moderate	Moderate	Low
1240 Newlands	40 60	Hard					Low	High	Low
1241 Newlands	40 60	Hard					Low	High	Low
1242 Newlands	40 60	Hard					Moderate	Moderate	Low
1243 Newlands	40 60	Hard					Moderate	Moderate	Low
1244 Newlands	40 60	Hard					Moderate	Moderate	Low
1245 Newlands	40 60	Hard					Moderate	Moderate	Low
1246 Newlands	40 60	Hard					Moderate	Moderate	Low
1247 Newlands	40 60	Hard					Moderate	Moderate	Low
1248 Newlands	40 60	Hard					Moderate	Moderate	Low
1249 Newlands	40 60	Hard					Moderate	Moderate	Low
1250 Newlands	40 60	Hard					Moderate	Moderate	Low
1251 Newlands	40 60	Hard					Moderate	Moderate	Low
1252 Newlands	40 60	Hard					Moderate	Moderate	Low
1253 Newlands	40 60	Hard					Moderate	Moderate	Low
1254 Newlands	40 60	Hard					Moderate	Moderate	Low
1255 Newlands	40 60	Hard					Moderate	Moderate	Low
1256 Newlands	40 60	Hard					Moderate	Moderate	Low
1257 Newlands	40 60	Hard					Moderate	Moderate	Low
1258 Newlands	40 60	Hard					Moderate	Moderate	Low
1259 Newlands	40 60	Hard					Moderate	Moderate	Low

										Risk of corrosion		
										Exposure	Uncoated steel	Concrete
Location	County	State	Section	Range	Township	Range	Section	Range	Section			
100										Low		Low
101										Low		Low
102										Low		Low
103										Low		Low
104										Low		Low
105										Low		Low
106										Low		Low
107										Low		Low
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265										Low		Low
266										Low		Low
267	</											

TABLE 2. — FEATURES

Map symbol and soil name	Bedrock		Cemented pan		Subsidence		Potential frost action	Risk of erosion	
	Depth	Hardness	Depth	Kind	Depth	Kind		Uncoated steel	Concrete
135 Raywat	—	Hard	+++	+++	+++	+	Moderate	Moderate	Low
Devada	12	Hard	+++	+++	+++	---	Low	Moderate	Low
Hart Camp++++++	10-20	Soft	+++	---	+++	---	Moderate	Moderate	Low
1336 Raywat++++++	10-20	Hard	+++	---	---	---	Moderate	Moderate	Low
1327 Raywat	—	Hard	---	---	---	---	Moderate	Moderate	Low
Westbutte	20-40	Hard	+++	---	---	---	Moderate	Moderate	Low
Happgood++++++	40-60	Hard	---	---	---	---	Moderate	Moderate	Low
1318 Raywat++++++	10-20	Hard	---	---	---	---	Moderate	Moderate	Low
Westbutte	—	---	---	---	---	---	---	---	---
1329 Raywat++++++	10-20	Hard	+++	---	---	---	Moderate	Moderate	Low
Devada	12	Hard	+++	---	---	---	Low	Moderate	Low
Westbutte	20-40	Hard	+++	---	---	---	Moderate	Moderate	Low
Black Hill	—	---	---	---	---	---	---	---	---
1316 Westbutte	20-40	Hard	---	---	---	---	Moderate	Moderate	Low
Ashram++++++	20-40	Soft	---	---	---	---	Low	Moderate	Low
Tussock	20-40	Soft	+++	---	---	---	Low	Moderate	Low
1345 Layview-----	10-14	Hard	---	---	---	---	Moderate	Moderate	Low
Happgood-----	40-60	Hard	+++	---	---	---	Moderate	Moderate	Low
1346 Layview-----	10-14	Hard	---	---	---	---	Moderate	Moderate	Low
Westbutte	20-40	Hard	+++	---	---	---	Moderate	Moderate	Low
Happgood	40-60	Hard	---	---	---	---	Moderate	Moderate	Low
1355 Badgercamp	14-20	Soft	---	---	---	---	Moderate	Moderate	Low
Hackwood	15	---	---	---	---	---	Moderate	Moderate	Low
East	40-5	Soft	---	---	---	---	Low	Moderate	Moderate
1356 Badgercamp	14-20	Soft	---	---	---	---	Moderate	Moderate	Low

AS 2 - SOIL FEATURES -Continued

Map symbol and soil name	Bedrock		Cemented pan		Subsidence		Potential L A S	Risk of corrosion	
	Depth	Hardness	Depth	Find	Initial	Total		To steel	Concrete
1	0								
26 Mudstone	40		-	+++	-	++	Moderate	Moderate	Low
26a Kaolite	40-6	Soft	-	+++	+++	++	Low	Moderate	Moderate
26b Basal layer sand	4-20	Soft	---	---	---	---	Moderate	Moderate	Low
26c Mudstone	40						Moderate	Moderate	Low
26 Mudstone	40-60	+++	1	+	++	+++	High	Moderate	Low
26 Mudstone	40	+++	+	+	+	+	High	Moderate	Low
26 Mudstone		++	++	++	+	++	High	Moderate	Low
26 Black mudstone	4	Hard	+++	---		---	None	---	-
26 Black mudstone	4-6	Hard	+++	---		---	Low	Moderate	Low
26 Black mudstone	4-40	Hard	---	---	---	---	Low	Moderate	Low
26 Black mudstone	40-60	Hard	+++	---	---	---	Low	Moderate	Low
26 Black mudstone	20-4	Hard	---	---	---	---	Low	High	Low
26 Black mudstone	4	Hard	+++	---	---	---	None	---	---
26 Black mudstone	2-20	Soft	---	---	---	---	Low	Moderate	Low
26 Black mudstone	4	Hard	+++	---	---	---	Low	Moderate	Low
26 Black mudstone	40	---	---	---	++	+++	Moderate	High	Low
26 Black mudstone	60	---	---	---	---	---	Moderate	High	Low
26 Black mudstone	60	---	---	---	---	---	Low	High	Low
26 Black mudstone	20	---	---	---	---	---	Moderate	Moderate	Low
26 Black mudstone	25	---	---	---	---	---	Low	High	Low
26 Black mudstone	40	Hard	++	++	++	---	Moderate	Moderate	Low
26 Black mudstone	14-2	Hard	---	---	---	---	Low	High	Low
26 Black mudstone	25	---	14-20	Thick	---	---	Moderate	High	Low
26 Black mudstone	4-20	Soft	---	+	---	+	Moderate	High	Low

TABLE 15. Soil Parameters (continued)

Map symbol and soil name	Bedrock		Cemented pan		Subsidence		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Load	Initial	Total		Uncoated steel	Concrete
4.0.0.0 Till	0-10	Soft					Moderate	Moderate	Low
4.0.0.1 Silt	10-20		10-20	Thin			Moderate	High	Low
4.0.0.2 Clay	20-40		20-40	Thin			Low	Moderate	Low
4.0.0.3 Silt	40-60		40-60	Thin			Low	High	Low
4.0.0.4 Clay	60-80		60-80	Thin			Low	Moderate	Low
4.0.0.5 Silt	80-100	Hard	80-100	Thin			Low	Moderate	Low
4.0.0.6 Clay	100-120	Hard	100-120	Thin			Low	Moderate	Low
4.0.0.7 Silt	120-140		120-140				Low	Moderate	Low
4.0.0.8 Clay	140-160		140-160				Low	Moderate	Low
4.0.0.9 Silt	160-180		160-180				Low	Moderate	Low
4.0.0.10 Clay	180-200		180-200				Low	Moderate	Low
4.0.0.11 Silt	200-220		200-220				Low	Moderate	Low
4.0.0.12 Clay	220-240		220-240				Low	Moderate	Low
4.0.0.13 Silt	240-260		240-260				Low	Moderate	Low
4.0.0.14 Clay	260-280		260-280				Low	Moderate	Low
4.0.0.15 Silt	280-300		280-300				Low	Moderate	Low
4.0.0.16 Clay	300-320		300-320				Low	Moderate	Low
4.0.0.17 Silt	320-340		320-340				Low	Moderate	Low
4.0.0.18 Clay	340-360		340-360				Low	Moderate	Low
4.0.0.19 Silt	360-380		360-380				Low	Moderate	Low
4.0.0.20 Clay	380-400		380-400				Low	Moderate	Low
4.0.0.21 Silt	400-420		400-420				Low	Moderate	Low
4.0.0.22 Clay	420-440		420-440				Low	Moderate	Low
4.0.0.23 Silt	440-460		440-460				Low	Moderate	Low
4.0.0.24 Clay	460-480		460-480				Low	Moderate	Low
4.0.0.25 Silt	480-500		480-500				Low	Moderate	Low
4.0.0.26 Clay	500-520		500-520				Low	Moderate	Low
4.0.0.27 Silt	520-540		520-540				Low	Moderate	Low
4.0.0.28 Clay	540-560		540-560				Low	Moderate	Low
4.0.0.29 Silt	560-580		560-580				Low	Moderate	Low
4.0.0.30 Clay	580-600		580-600				Low	Moderate	Low
4.0.0.31 Silt	600-620		600-620				Low	Moderate	Low
4.0.0.32 Clay	620-640		620-640				Low	Moderate	Low
4.0.0.33 Silt	640-660		640-660				Low	Moderate	Low
4.0.0.34 Clay	660-680		660-680				Low	Moderate	Low
4.0.0.35 Silt	680-700		680-700				Low	Moderate	Low
4.0.0.36 Clay	700-720		700-720				Low	Moderate	Low
4.0.0.37 Silt	720-740		720-740				Low	Moderate	Low
4.0.0.38 Clay	740-760		740-760				Low	Moderate	Low
4.0.0.39 Silt	760-780		760-780				Low	Moderate	Low
4.0.0.40 Clay	780-800		780-800				Low	Moderate	Low
4.0.0.41 Silt	800-820		800-820				Low	Moderate	Low
4.0.0.42 Clay	820-840		820-840				Low	Moderate	Low
4.0.0.43 Silt	840-860		840-860				Low	Moderate	Low
4.0.0.44 Clay	860-880		860-880				Low	Moderate	Low
4.0.0.45 Silt	880-900		880-900				Low	Moderate	Low
4.0.0.46 Clay	900-920		900-920				Low	Moderate	Low
4.0.0.47 Silt	920-940		920-940				Low	Moderate	Low
4.0.0.48 Clay	940-960		940-960				Low	Moderate	Low
4.0.0.49 Silt	960-980		960-980				Low	Moderate	Low
4.0.0.50 Clay	980-1000		980-1000				Low	Moderate	Low

TABLE 10 CLASSIFICATION OF THE S. 45

Soil name	Family or higher taxonomic class
Acid Epiaquents	Acid Epiaquents Frigid
Acidic Argixerolls	Vitricosandic Argixerolls ashly basic shallow
Acidic Argixerolls	Vitricosandic Argixerolls ashly frigid
Acidic Argixerolls	Vitricosandic Argixerolls ashly mesic
Acidic Argixerolls	Vitricosandic Argixerolls ashly frigid
Acidic Argixerolls	Argic Cryoborolls loamy skeletal mixed shallow
Acidic Argixerolls	Perthic Argixerolls coarse loamy mixed frigid
Acidic Argixerolls	Perthic Argixerolls clayey montmorillonitic mesic
Acidic Argixerolls	Argic Argixerolls clayey montmorillonitic mesic shallow
Acidic Argixerolls	Typic Natregids fine loamy over sandy or sandy skeletal mixed mesic
Acidic Argixerolls	Vitricosandic Haploxerolls ashly mesic
Acidic Argixerolls	Argic Lithic Cryoborolls clayey montmorillonitic
Acidic Argixerolls	Vitricosandic Haploxerolls ashly frigid
Acidic Argixerolls	Lithic Xeric Hapregids loamy mixed mesic
Acidic Argixerolls	Lithic Xeric Hapregids fine montmorillonitic frigid
Acidic Argixerolls	Xeric Argixerolls clayey montmorillonitic mesic shallow
Acidic Argixerolls	Xeric Hapregids clayey montmorillonitic mesic
Acidic Argixerolls	Intervitic Xeric Hapregids fine loamy mixed mesic
Acidic Argixerolls	Xeric Hapregids loamy mixed mesic shallow
Acidic Argixerolls	Argic Argixerolls clayey montmorillonitic frigid
Acidic Argixerolls	Lithic Argixerolls clayey montmorillonitic
Acidic Argixerolls	Lithic Argixerolls clayey montmorillonitic mesic
Acidic Argixerolls	Lithic Argixerolls clayey skeletal montmorillonitic
Acidic Argixerolls	Lithic Argixerolls clayey skeletal montmorillonitic mesic
Acidic Argixerolls	Natregids Natregids fine montmorillonitic mesic
Acidic Argixerolls	Perthic Xeric Argixerolls loamy skeletal mixed frigid
Acidic Argixerolls	Vitricosandic Haploxerolls ashly mesic
Acidic Argixerolls	Abruptic Xeric Argixerolls clayey montmorillonitic mesic shallow
Acidic Argixerolls	Aridic Argixerolls fine loamy mixed mesic
Acidic Argixerolls	Vertic Argixerolls very fine montmorillonitic mesic
Acidic Argixerolls	Typic Argixerolls clayey skeletal montmorillonitic mesic
Acidic Argixerolls	Aridic Haploxerolls loamy skeletal mixed frigid
Acidic Argixerolls	Vitricosandic Haploxerolls ashly frigid
Acidic Argixerolls	Xeric Hapregids fine montmorillonitic frigid
Acidic Argixerolls	Abruptic Xeric Argixerolls clayey montmorillonitic mesic shallow
Acidic Argixerolls	Abruptic Xeric Argixerolls clayey montmorillonitic mesic shallow
Acidic Argixerolls	Perthic Cryoborolls fine loamy mixed
Acidic Argixerolls	Perthic Hapregids, very fine montmorillonitic mesic
Acidic Argixerolls	Haploxerolls Argixerolls ashly mesic shallow
Acidic Argixerolls	Haploxerolls Argixerolls loamy skeletal mixed
Acidic Argixerolls	Haploxerolls Argixerolls loamy mixed frigid shallow
Acidic Argixerolls	Aridic Haploxerolls, loamy skeletal mixed frigid
Acidic Argixerolls	Xeric Argixerolls, clayey montmorillonitic mesic shallow
Acidic Argixerolls	Typic Torripsamments mixed mesic
Acidic Argixerolls	Lithic Xeric Hapregids loamy mixed mesic
Acidic Argixerolls	Leptic Haploxerolls very fine montmorillonitic frigid
Acidic Argixerolls	Xeric Hapregids fine loamy over sandy or sandy skeletal mixed mesic
Acidic Argixerolls	Xeric Hapregids fine loamy over sandy or sandy skeletal mixed mesic
Acidic Argixerolls	Aquicambic Haploxerolls ashly mesic
Acidic Argixerolls	Xeric Natregids fine montmorillonitic mesic
Acidic Argixerolls	Vertic Natregids, very fine montmorillonitic frigid
Acidic Argixerolls	Lithic Argixerolls clayey montmorillonitic frigid
Acidic Argixerolls	Vertic Natregids fine montmorillonitic mesic
Acidic Argixerolls	Typic Torripsamments, coarse loamy mixed cal. argous mesic
Acidic Argixerolls	Xeric Haploxerolls sandy skeletal mixed mesic

RANGELAND PLANTS AND WOODLAND UNDERSTORY

1010 - MACYFLAT BOULDER LAKE ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or inclusion number			
		MACYFLAT	BOULDER LAKE	Inclusion 1	Inclusion 2
Caslick bluegrass	BOCV3	10-30		---	---
Indian ricegrass	GRNY				18-25
Nevada bluegrass	POMH3	2-8	15-35		
Thurber needlegrass	STTB2	25-35	---	5-15	
basin wildrye	ELC12	5-15		10-40	2-8
bluegrass	PDA++		--	30-40	
creeping wildrye	SLTR3		5-15		
Mat subly	MURI		5-10		
needleandthread	STCO4				30-40
thickspike wheatgrass	AGDA		---		2-8
Lupine	LUPFM	2-5		2-5	--
big sagebrush	ARTR2		--	15-25	10-20
early sagebrush	ARKLP	15-35	--		--
rubber rabbitbrush	CHRA2		2-5		
silver sagebrush	ARCAL1	--	30-40		
spiny hopsage	GRSP	---	---	---	2-8
Range site number		021XT090HY	021XT003HY	021XT082HY	021XT051HY
Potential production (lb/acre):					
Favorable years		800	1800	1100	900
Normal years		700	1400	800	700
Unfavorable years		450	700	600	500

011- MACFLET SILT LOAM 0 TO 2 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight, of plants on major soils and inclusions		
Common plant name	Plant symbol	Soil name or Inclusion number		
		MACFLET	Inclusion 1	Inclusion 2
Oatck bluegrass	POCH1	20-20		-
Nevada bluegrass	POWE3	1-8	15 35	
Thurber seedgrass	STTE2	25 15		5 15
basin wildrye	BLC12	5 15		10 40
bluegrass	POA++		---	30-40
creeping wildrye	SLTR3	-	5 15	
mat sedge	HURI		5 10	--
lupine	LUPIN	2 5		2 5
big sagebrush	ART22			15-25
early sagebrush	ARLON	15 25		
rubber rabbitbrush	CEMA2		2 5	--
silver sagebrush	ARCA13	---	30 40	--
Range site number		023XT03MV	023XT03MV	023XT03MV
Potential production (lb/acre):				
Favorable years		900	1800	1100
Normal years		700	1400	800
Unfavorable years		450	700	500

1012 -MACYFLET-INDIAN CREEK ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production dry weight, of
plants on major soils and inclussions

Common plant name	Plant symbol	Soil name or inclusion number				
		MACYFLET	INDIAN CREEK	Inclusion 1	Inclusion 2	Inclusion 3
Quack bluegrass	POCU1	20 30	--			
Indian ricegrass	QREY	--		15-25	5-15	-
Nevada bluegrass	POWE3	2-8	+++			2-8
Sandberg bluegrass	POSE	---	---	-	2-5	-
Thurber needlegrass	STNE2	28 38	30 40		20 40	---
Wahler needlegrass	STWE	--	5-15	---	2-8	
basin wildrye	ELCI2	5-15		2-8	-	45-75
bluebunch wheatgrass	AGSP		2-8			
bluegrass	POA++	--	5 10		-	---
Bottlebrush squirreltail	STKY		--	-	2-5	
needleandthread	STCO4	---		20 40	---	-
thickspike wheatgrass	AGDA	-	-	2-5		
lupine	LYFIM	2-5				--
Douglas rabbitbrush	CRV18	-	2-5	-	--	--
Wyoming big sagebrush	ARTRM	---			20 30	--
basin big sagebrush	ARTRT	---	---	-	---	5-10
big sagebrush	ARTR2		-	10-30	-	
early sagebrush	ARLO9	15 25				
low sagebrush	ARLR3	--	20 30	-	---	--
rubber rabbitbrush	CHRA2	-	--	--		1-3
spiny hopsage	CHSP		---	2-5	2-5	
Range site number		023XY0909V	023XY099V	023XY0910V	023XY0906V	023XY0909V
Potential production (lb/acre)						
Favorable years		500	600	600	600	5500
Normal years		700	450	700	600	4500
Unfavorable years		450	300	500	400	2500

1015 FORTON VERY GRAVELLY LOAM, 2 TO 15 PERCENT SLOPES

(absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of plants on major soils and inclussions					
Common plant name	Plant symbol	Soil name or inclusion number -			
		FORTON	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	2-5	---	---	---
Indigo ricegrass	CHRY	---	5-15	5-15	---
Sandberg bluegrass	POSE	---	2-5	2-5	---
Thurber needlegrass	STNE	15-20	20-40	20-30	15-20
Webber needlegrass	STNE	---	1-5	2-5	5-15
basin wildrye	WLCR	5-10	---	---	---
bluestem wheatgrass	AGSP	30-40	---	---	30-40
bluegrass	POA+	---	---	---	---
bottlebrush squawtail	SINY	---	2-5	2-5	---
Douglas rabbitbrush	CHVIB	---	---	---	2-5
Wyoming big sagebrush	ARTW	---	20-40	20-30	---
antelope bitterbrush	FUTR	2-10	---	---	2-10
big sagebrush	ARTW	15-25	---	---	15-25
low sagebrush	ABAR	---	---	---	20-30
spiny hopsage	GRSF	---	2-5	2-5	---
Range site number		023XY010NV	023XY006NV	023XY006NV	023XY020NV
Potential production (lb/acre):					
Favorable years		1100	600	600	1100
Normal years		600	600	600	600
Unfavorable years		600	400	400	300

1020 SHEARSPINE-NEEDLE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight of plants on major soils and inclusions)						
Common plant name	Plant symbol	Soil name or inclusion number				
		SHEARSPINE	NEEDLE	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	BOCA					2-5
Idaho fescue	FRID	40-50		2-5	40-60	---
Nevada bluegrass	POWE3	-	40-50	--		
Thurber needlegrass	STRA2	--		20-40	--	15-20
Basis wildrye	ELC12					5-10
Bluebunch wheatgrass	AGSP	2-5	-	20-40	2-10	30-40
bluegrass	POW+	---		5-10	5-10	---
sedge	CAREX		5-15	---	--	
antelope bitterbrush	FUTR2	10-20		2-10		2-10
big sagebrush	ARTR2			-	-	15-25
low sagebrush	ARAS2			15-25	10-20	-
mountain big sagebrush	ARTAS	10-20			-	
<hr/>						
Range site number		023XT064NV	023XY011NV	023XY078NV	023XY079NV	023XT020NV
Potential production (lb/acre):						
Favorable years		1100	1200	1300	1200	1100
Normal years		1100	1700	1000	900	900
Unfavorable years		900	1300	700	600	600

1025. MESQUAN FINE SANDY LOAM 0 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Vegetative composition and production dry weight of plants on major soils and inclusions						
Common plant name	Plant symbol	Soil name or inclusion number				
		MESQUAN	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	ORRY	5 15		5 15	5-15	2 8
Sandberg bluegrass	POSE	2 5		2-5	2 5	--
Thurber needlegrass	STYH2	20 40	8 15	20 40	20 40	
Muhlenberg needlegrass	STYH	2 8		2 8	2 8	
basin wildrye	ELC12	---	10-40		---	8 20
bluegrass	POA++		10 40	---		
bottlebrush squirreltail	SIFY	2 5		2 8	2 5	2 5
globeamallow	SPEAR					1 2
leopold	LTPIM	--	2 5	-	---	-
thelipody	THELY			-		2 8
Wyoming big sagebrush	ARTM	20 30	---	20-30	20-30	--
big sagebrush	ARTM		15 25		-	10 25
black greasewood	SAVE4		---			20 30
spiny hopsgoe	GRSP	2 5		2-5	2 5	5 15
Range site number		023XY006MY	023XY022MY	023XY006MY	023XY006MY	024XY022MY
Potential production lb/acre:						
Favorable years		800	1,400	800	800	800
Normal years		600	800	600	600	600
Unfavorable years		400	600	400	400	350

1030 -BORRAVISTA FINE SAND, 4 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight of plants on major soils and inclusions)			
Common plant name	Plant symbol	Soil name or inclusion number--			
		BORRAVISTA	Inclusion 1	Inclusion 2	Inclusion 3
Indigo ricegrass	ORRY	10-40	15-25	15-25	5-15
Sandberg bluegrass	POSK	-	-	-	2-5
Thurber needlegrass	STTB2	-	-	-	20-40
Webber needlegrass	STWE	-	-	-	2-5
Basin wildrye	ELCI2	2-5	2-5	2-5	-
bottlebrush squirreltail	SIREY	-	-	-	2-5
needleandthread	STCH4	5-15	20-40	20-40	-
thickspike wheatgrass	AQDA	2-5	2-5	2-5	-
Wyoming big sagebrush	ARTRW	-	-	-	20-30
basin big sagebrush	ARTBT	10-25	-	-	-
big sagebrush	ARTB2	-	10-20	10-20	-
fourwing saltbush	ATCAL	2-5	-	-	-
spiny hopsage	GRSP	5-10	2-5	2-5	2-5
Range site number		023KY011MV	023KY011MV	023KY051MV	023KY061MV
Potential production (lb/acre):					
Favorable years		500	500	500	500
Normal years		500	700	700	500
Unfavorable years		100	500	500	400

1039 WINEMILE-MADRELIN-CROCAN ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable.
Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Percentage composition and production (dry weight) of plants on major soils and inclusions								
Common plant name	Plant symbol	Soil name or inclusion number						
		WINEMILE	MADRELING	CROCAN	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCB	---	---	X	-			
Cosack bluegrass	POCUB			X			---	
Idaho fescue	PRID	30-50	5-20	X	40-50	10-20	X	10-20
Nevada bluegrass	POWE1						X	2-5
Sandberg bluegrass	POSE	---	---	-			X	
Thurber needlegrass	STWB2	2-8	5-10	X			X	-
basin wildrye	SLC11	---	5-10	-		-	X	
bluebunch wheatgrass	AGW1	15-30	20-35	X	2-5	5-15	X	
bluegrass	POA++	3-8	---		5-15	2-5		
mountain brome	BRCE5					2-8	---	10-20
needlegrass	STIPA	---			-	5-15	-	10-20
oatgrass	BAOW	---	-		1-3	-		
purple oniongrass	BRSE						-	2-5
slender wheatgrass	AGTE	--			--			2-8
western needlegrass	STOC2	-	-	X			-	
arrowleaf balsamroot	BLJA1	--	--	-	2-5			
low sagebrush	ARAL1	10-20		X	10-20	-		
nutleaf bitterbrush	PUTR2		15-25				---	2-5
curlleaf mountainmahogany	CHLE3					25-40		-
low sagebrush	ARAL0	10-20		X	10-20		-	
mountain big sagebrush	ARVA2		5-15		-	5-10	X	-
snowberry	SYMP1	--				2-8		2-8
Range site number		023XY017HV	023XY019HV	023XY020HV	023XY021HV	023XY022HV	023XY024HV	023XY026HV
Potential production (lb/acre)								
Favorable years		900	1500	600	800	1400	700	2600
Normal years		700	1200	400	500	1100	500	1800
Unfavorable years		500	900	200	400	600	100	1400

1011 TINPAN-MIXEDWILK ASSOCIATION

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable.
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

		Percentage composition and production (dry weight) of plants on major soils and inclussions				
Common plant name	Plant symbol	Soil name or Inclussion number				
		TINPAN	MIXEDWILK	Inclussion 1	Inclussion 2	Inclussion 3
Comby bluegrass	POCA	-	-	-	X	-
Curuck bluegrass	POCV	-	-	-	X	-
Idaho fescue	FEID	10-50	30-50	-	X	40-50
Sandberg bluegrass	POSB	-	-	5-10	-	-
Thurber needlegrass	STTH	2-5	2-5	-	X	-
bluebunch wheatgrass	AGSP	15-30	15-30	-	X	2-5
bluegrass	POA++	1-5	2-5	-	-	5-15
bottlebrush squarreltail	STBY	-	-	10-20	-	-
sheepike oatgrass	DAOW	-	-	-	-	1-3
western needlegrass	STOC	-	-	-	X	-
arrowleaf balsamroot	BASA	-	-	-	-	2-5
erigeron	ERIG	-	-	1-5	-	-
low sagebrush	ARJUS	10-20	10-20	2-10	X	10-20
lupine	LUPIN	-	-	1-2	-	-
low sagebrush	ARJUS	10-20	10-20	2-10	X	10-20
rubber rabbitbrush	CHAL	-	-	30-50	-	-
Range site number		023XY017NV	023XY017NV	023XY001NV	023XY095NV	023XY014NV
Potential production (lb/acre)						
Favorable years		500	900	350	600	800
Normal years		700	700	225	400	600
Unfavorable years		500	500	150	200	400

1040 LANGSTON GRAVELLY SANDY LOAM 2 TO 8 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or inclusion number		
		LANGSTON	Inclusion 1	Inclusion 2
Indiana ricegrass	ORRY	5-15	15-25	2-5
Sandberg bluegrass	POSK	2-5		--
Thurber needlegrass	STTH2	10-40		--
Weber needlegrass	STNE	2-8	--	--
basin wildrye	KLCT2		2-8	5-20
bottlebrush squirreltail	SIRY	2-5		2-5
needleandthread	STCO4		10-40	--
thickspike wheatgrass	AGDA	--	2-5	
globeallow	SPER		--	1-3
sheepsoy	TEFLY	--	--	2-4
Wyoming big sagebrush	ARTW	20-30		
big sagebrush	ART2		10-20	10-25
black greasewood	GLVE4			20-30
spiny hopsage	GRSP	2-5	2-5	5-15
Range site number		013XV004WV	013XV051WV	013XV022WV
Potential production (lb/acre)				
Favorable years		800	900	800
Normal years		600	700	600
Unfavorable years		400	500	350

1041. LANGSTON-OLD CAMP-PAYPOINT ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number				
		LANGSTON	OLD CAMP	PAYPOINT	Inclusion 1	Inclusion 2
Indian ricegrass	ORIT	5 15	5 25		15 25	--
Nevada bluegrass	POHE	-	---	-	--	2-10
Sandberg bluegrass	POSE	2 5	2 5		--	---
Thunder needlegrass	STNE	20-40	20 40	5-15		
Wegbar needlegrass	STNE	2-8	2 8			
basin wildrye	ELCI	-	---	30-40	1 8	40 60
bluegrass	POHE		--	10 40	--	--
bottlebrush squirttail	STRY	2 5	2 5			
needle-and-thread	STCO		-	--	20-40	---
thickspike wheatgrass	AGDA	-	-	-	2 5	
western wheatgrass	AGSM					2 10
lupine	LUPIN	--		2 5		--
povertyweed	IVAX			--	--	2-5
chelypody	TRFLV		-	-	--	1-3
Wyoming big sagebrush	ARTRM	20 30	20 30	--	-	
basin big sagebrush	ARTR	-				5 15
big sagebrush	ARTR			15 25	10 20	--
rubber rabbitbrush	CHWA			-		1 3
spiny hopsgoe	CHSP	2 4	2 5	--	2-5	
Range site number		021XV006MV	021XV008MV	021XV009MV	021XV011MV	021XV005MV
Potential production (lb/acre)						
Favorable years		300	600	1100	800	1000
Normal years		600	600	800	700	2000
Unfavorable years		400	600	600	500	1300

1645 PAYPOINT-LARGSTON ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Percentage composition and production (dry weight of plants on major soils and inclusions)						
Common plant name	Plant symbol	Soil name or inclusion number--				
		PAYPOINT	LARGSTON	Inclusion 1	Inclusion 2	Inclusion 3
Indian Ricegrass	ORRY	-	3-15	2 5	15 25	-
Nevada bluegrass	POWE1	--	---	---		2 20
Sandberg bluegrass	POSE		2 5			--
Thurber needlegrass	STNE1	5-15	20 40	--	-	
Wabber needlegrass	STNE	--	2 8			
basin wildrye	KLC12	30 40	-	5-20	2 8	40 60
bluegrass	POR++	30 40				-
bottlebrush squilltail	SINY	---	2-5	2-5		-
needleandthread	STDO4				20-40	--
chickpea wheatgrass	AGDA	-	-	--	2-5	
western wheatgrass	AGSM					2 10
goboselion	SPRAE			1 3		-
lupine	LUPIN	2 5	-	--	-	
povertyweed	IVAX					2-5
holypody	TAKLY	-	---	3 4		1 3
Wyoming big sagebrush	AKTRW		20 30			
basin big sagebrush	AKTRF		-	-	-	5-15
big sagebrush	AKTR2	15-25	---	10-25	10 20	
black greasewood	SAVE4	-	-	20-30	--	-
spiny hopsage	GRSP	-	2 5	5 15	2 5	
Range site number		023KY062MV	023KY008MV	024KY022MV	023KY051MV	023KY005MV
Potential production (lb/acre):						
Favorable years		1100	800	800	900	1000
Normal years		800	600	600	700	2000
Unfavorable years		800	400	350	500	1300

1050--SKULLGOK SILT LOAM, 0 TO 2 PERCENT SLOPES

(absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or inclusion number		
		SKULLGOK	Inclusion 1	Inclusion 2
Indian ricegrass	GRHY			2 8
Lemon alkaligrass	PULE	20 35	2 8	
Nevada bluegrass	POHE1	40 50	10 20	
basin wildrye	ELCL2	2 8	50 60	5-20
bottlebrush squirreltail	SIRY		-	2 8
inland saltgrass	SIAP2	5 20	2 8	-
globemallow	SPHA	-		1 2
other perennial forbs	FFFF	10 20		-
chelypody	TRLY	-		2 8
big sagebrush	ARTR2			10-25
black greasewood	SAVE4	-	5 10	20-30
other shrubs	SSSE	0-5		---
spiny hopsage	GRSP	---		5 15
threadleaf rubber rabbitbrush	CHRGAC		2 5	---
Range state number		023XY002NV	023XY010NV	024XY022NV
Potential production (lb/acre):				
Favorable years		1100	2200	800
Normal years		1000	1700	600
Unfavorable years		700	1000	350

1015--NEVADA--HAPGOOD EAST CAMP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production dry weight of plants on major soils and inclusions					
		Soil name or inclusion number					
		NEVADA	HAPGOOD	EAST CAMP	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID		10-20	5-20	11-25	30-50	
Nevada bluegrass	POHE3	---	2-5				2-4
Thurber sandiagrass	STTH2	10-25		5-10		2-4	---
basin wildrye	ELUT2		--	5-10	--	---	65-75
bluestem wheatgrass	AGSP	20-50		25-35		15-20	
bluegrass	POH++	5-10			5-15	2-4	
mountain brome	BRCA5	---	10-20				--
needlegrass	STIPA	--	10-20				
purple oniongrass	HESE	---	2-5				--
slender wheatgrass	ACTH	---	2-5		--	---	
goldenweed	HAFLD2				2-5		--
Douglas rabbitbrush	CHVIR				2-5	--	
antelope bitterbrush	FOYH1		2-5	15-25		---	
basin big sagebrush	ARTY			---	--		5-10
low sagebrush	ARAR6	10-20			15-15	10-10	---
mountain big sagebrush	ATVA2	---		5-15	---		
rubber rabbitbrush	CHH42					---	1-3
snowberry	SYNPH		2-8				
Range site number		021XT021MV	022XT065MV	023XT025MV	023XT008MV	023XT017MV	023XT009MV
Potential production (lb/acre):							
Favorable years		900	2600	1300	400	900	5500
Normal years		700	1800	1200	250	700	4500
Unfavorable years		500	1400	900	200	500	2500

1060 BOMBADIL CHINE ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or Inclusion number -				
		BOMBADIL	CHINE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORRY	5-15	5-15	1-15	5-15	--
Nevada bluegrass	PONE3	--	--	--	--	2-10
Sandberg bluegrass	POSE	2-8	2-8	2-5	2-5	--
Thurber needlegrass	STNE3	15-25	15-25	20-40	20-40	--
Webber needlegrass	STNE	--	--	2-8	2-8	--
basin wildrye	ELCJ2	--	--	--	--	60-80
bottlebrush squirreltail	SINEY	2-5	2-5	2-5	2-5	--
western wheatgrass	WGSN	--	--	--	--	2-10
globemallow	SPHAR	1-2	1-2	--	--	--
povertyweed	TVAX	--	--	--	--	2-5
theclpody	THECLV	--	--	--	--	1-1
Wyoming big sagebrush	AMTRM	20-35	20-35	20-30	20-30	--
basin big sagebrush	AMTWT	--	--	--	--	5-15
spiny hopsage	GRSP	5-20	5-20	2-5	2-5	--
Range site number		024XY020NV	024XY030NV	023XY006NV	023XY006NV	023XY005NV
Potential production lb/acre		700	700	800	800	1000
Favorable years		450	450	500	500	2000
Normal years		300	300	400	400	1300
Unfavorable years						

1051--OLD CAMP GRAVELLY LOAM: 2 TO 10 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or inclusion number--			
		OLD CAMP	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORRY	5-15	5-15	5-15	5-15
Sandberg bluegrass	POBK	2-5	2-5	2-5	2-8
Thurber needlegrass	STWZ	20-40	20-40	20-40	15-25
Webber needlegrass	STWE	2-8	2-8	2-8	
Bottlebrush squirreltail	BLFY	2-5	2-5	2-5	2-5
Globeamallow	SEMA				1-2
Wyoming big sagebrush	AKRW	20-30	20-30	20-30	20-35
Spry sage	GRSP	2-5	2-5	2-5	5-20
Range site number		023XT000NV	023XT000NV	023XT000NV	024XT020NV
Potential production (lb/acre)		600	600	600	700
Favorable years		600	600	600	450
Normal years		400	400	400	300
Unfavorable years		400	400	400	300

1042 OLD CAMP-CORRAL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight) of plants on major soils and inclusions				
Common plant name	Plant symbol	Soil name or inclusion number				
		OLD CAMP	CORRAL	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID			10-40		---
Indian ricegrass	ORRY	5-15	5-15	-	---	-
Sandberg bluegrass	POSB	2-5	2-5			---
Thurber needlegrass	STTH	10-40	10-40	2-5	30-40	10-20
Webber needlegrass	STWE	2-5	2-5		5-15	-
Basin wildrye	WICW	-		5-10	-	2-10
Bluebunch wheatgrass	AGSP	-	---	25-40	2-5	40-60
Bluegrass	POLO			2-5	5-10	---
bottlebrush squarreltail	SINI	2-5	2-5			
Douglas rabbitbrush	CHVI				2-5	-
Wyoming big sagebrush	ARWY	20-40	20-30	-		10-20
antelope bitterbrush	PUTB	-	-	2-10	---	2-5
big sagebrush	ANTR					15-25
low sagebrush	ARAL	---			20-30	-
mountain big sagebrush	ANVA			10-20		10-20
spiny hopsage	GRSP	1-5	2-5	---	---	
Range site number		021XW006W	023XW006W	023XW007W	023XW059W	023XW039W
Potential production lb/acre:						
Favorable years		800	800	1800	600	900
Normal years		600	600	1200	450	700
Unfavorable years		400	400	900	300	500

1863 OLD CAMP VERY STONY LOAM 5 TO 30 PERCENT SLOPES

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number--				
		OLD CAMP	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA	-	---	2-5	--	X
Casick bluegrass	POCU1	-	-	--	---	X
Indian ricegrass	ORRY	5-15	5-15	-	-	-
Sandberg bluegrass	POSE	2-5	2-5	---	---	--
Thurber needlegrass	STHE2	20-40	20-40	15-20	10-20	--
Webber needlegrass	STHE	2-5	2-5	--	-	-
Basin wildrye	ELC12	-	-	5-10	2-10	-
Bluebonnet wheatgrass	AGSP	-	-	30-40	40-60	X
Bottlebrush squirreltail	SIEY	2-5	2-5	---	---	---
Prairie junegrass	KOPY	-	---	---	-	X
Wyoming big sagebrush	ARTRN	20-30	20-30	-	10-30	-
Antelope bitterbrush	PUTR1	---	-	2-10	2-5	-
Big sagebrush	ARTR2	-	-	15-25	15-25	---
Low sagebrush	ARTR3	-	-	---	--	X
Mountain big sagebrush	ARTR4	---	-	-	10-20	---
Spiny hopsage	CHSP	2-5	2-5	---	-	-
Range site number		023XY006MV	023XY006MV	023XY020FV	023XY039MV	023XY031MV
Potential production lb/acre:						
Favorable years		800	800	1100	900	900
Normal years		500	600	900	700	400
Unfavorable years		400	400	600	500	200

1055 OLD CAMP-KIYAT-RUBBLE LAND ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production dry weight of plants on major soils and inclusions								
Common plant name	Plant symbol	Soil name or inclusion number						
		OLD CAMP	KIYAT	RUBBLE LAND	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	CHRY	3-15	-	-	35-10	-	-	-
Nevada bluegrass	POHE	-	-	-	-	-	2-10	40-50
Sandberg bluegrass	POSE	2-5	-	-	-	-	-	-
Flourber needlegrass	STYH	20-40	10-20	-	-	5-15	-	-
Wabber needlegrass	STWE	2-8	-	-	-	-	-	-
basin wildrye	ELCI?	-	2-10	-	2-8	-	40-60	-
bluebunch wheatgrass	AGSP	-	40-50	-	-	40-60	-	-
bluegrass	SOLE	-	-	-	-	2-8	-	-
bottlebrush squirreltail	SINY	2-5	-	-	5-10	-	-	-
sedge	CAREX	-	-	-	-	-	-	1-15
western wheatgrass	AGSW	-	-	-	-	-	2-10	-
Hooker halimolobos	BAMO	-	-	-	-	2-5	-	-
povertyweed	LYEL	-	-	-	-	-	2-5	-
teatip hawkbeard	CRAC	-	-	-	-	1-2	-	-
thalypody	TRILY	-	-	-	-	-	1-3	-
Lehontan sagebrush	ARAL?	-	-	-	-	10-20	-	-
Wyoming big sagebrush	ARTW	20-30	10-10	-	10-40	-	-	-
antelope bitterbrush	PUTR	-	2-5	-	7-10	-	-	-
basin big sagebrush	ARTW	-	-	-	-	-	5-15	-
big sagebrush	ARTW	-	15-25	-	-	-	-	-
mountain big sagebrush	ARTW	-	10-20	-	-	-	-	-
spiny hysage	GRSP	2-5	-	-	2-10	-	-	-
winterfat	EULAS	-	-	-	7-10	-	-	-
<hr/>								
Range site number		023XV000W	023XV001W	none	023XV002W	023XV003W	023XV005W	023XV011W
Potential production (lb./acre)								
Favorable years		100	900		350	700	1000	2200
Normal years		600	700		200	600	2000	1700
Unfavorable years		400	500		100	400	1300	1300

1070. ORCHIEVA VERY GRAVELLY LOAM 2 TO 15 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential native plant community

Percentage composition and production (dry weight) of plants on major soils and inclinations					
Common plant name	Plant symbol	Soil name or inclusion number			
		ORCHIEVA	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	2-5			2-5
Indian ricegrass	ORRY		5-15		--
Sandberg bluegrass	POAK		2-5		--
Thurber needlegrass	STTE3	15-20	10-40	5-15	15-20
Webber needlegrass	STWE		2-5		--
basin wildrye	BLC12	5-10		10-40	5-10
bluebunch wheatgrass	BLSP	10-40	--		10-40
bluegrass	POA++	--	--	10-40	--
bottlebrush squarreltail	SENY		2-5		--
lupine	LOTIN	--	--	2-5	--
Wyoming big sagebrush	BYTRW		10-30		
antelope bitterbrush	POTE2	2-10			2-10
big sagebrush	ARTK2	15-25	--	15-25	15-25
spiny hopsage	GRSP		2-5		--
Range site number		021XY010WV	023XY006WV	023XY012WV	023XY020WV
Potential production, lb/acre					
Favorable years		1100	800	1100	1100
Normal years		100	400	800	900
Unfavorable years		400	400	400	600

1075 -SURPRISE GRAVELLY LOAMY SAND. 2 TO 15 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

		Percentage composition and production (dry weight, of plants on major soils and inclusions)			
Common plant name	Plant symbol	Soil name or inclusion number			
		SURPRISE	Inclusion 1	Inclusion 2	Inclusion 3
hairy rush	JURA	-	-	-	2-8
Canby bluegrass	POCA	2-5	-	-	-
Indian ricegrass	ORRY	-	15-25	-	-
Nevada bluegrass	POWEL	-	-	2-8	40-60
Churbar needlegrass	STIR2	15-20	-	-	-
basin wildrye	ELCI2	5-10	2-8	65-75	1-6
humbunch wheatgrass	AGSF	30-40	-	-	-
meadow barley	HOBR1	-	-	-	2-8
needleandthread	STCO4	-	10-40	-	-
sedge	CAREX	-	-	-	10-20
thickspike wheatgrass	AGD4	-	2-8	-	-
monticola bitterbrush	FUTE2	2-10	-	-	-
basin big sagebrush	ARTR7	-	-	5-10	-
big sagebrush	ARTR2	15-25	10-20	-	-
rubber rabbitbrush	CEMA2	-	-	1-5	-
spiny hopsage	GRSP	-	2-5	-	-
Range site number		023XY020NV	023XY051NV	023XY009NV	023XY083NV
Potential production (lb/acre):					
Favorable years		1100	800	5500	4000
Normal years		900	700	4500	3000
Unfavorable years		600	500	2500	2000

1980--BUCKLAKE-ROCK OUTCROP-CORRAL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight) of plants on major soils and inclusions					
Common plant name	Plant symbol	Soil name or inclusion number					
		BUCKLAKE	ROCK OUTCROP	CORRAL	Inclusion 1	Inclusion 2	Inclusion 3
Cusky bluegrass	BOCA	---	---	-	2-5	---	---
Indian ricegrass	CHRY	---	---	5-15	---	---	---
Sandberg bluegrass	POSE	---	---	2-5	---	---	---
Thurber needlegrass	STTR2	10-20	---	20-40	2-5	10-20	10-25
Webber needlegrass	STWR	---	---	2-8	---	---	---
Desert wildrye	ELCI2	2-10	---	---	10-20	5-10	---
Bluebunch wheatgrass	ACSP	40-60	---	---	20-40	40-60	20-50
Bluegrass	POA++	-	---	-	---	---	5-10
Bottlebrush squirreltail	SINY	---	---	2-5	---	---	---
Wyoming big sagebrush	ARTW	10-20	---	20-30	---	10-15	---
Antelope bitterbrush	PUTR2	2-5	---	---	2-10	2-5	---
Big sagebrush	ARTR2	15-25	---	---	---	15-25	-
Low sagebrush	ARLR2	---	---	---	---	---	10-20
Mountain big sagebrush	SRVA2	10-20	-	---	5-15	10-20	-
Spiny hopsage	CHSP	---	---	2-5	---	---	---
Range site number		023KY019MV	none	023KY004MV	023KY041MV	023KY039MV	023KY011MV
Potential production (lb/acre):							
Favorable years		900		800	1400	900	800
Normal years		700		600	1200	700	700
Unfavorable years		500		400	900	500	600

1041 BUCKLAKES-FIDDLER ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight) of plants on major soils and inclusions				
Common plant name	Plant symbol	Soil name or inclusion number -				
		BUCKLAKE	FIDDLER	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	-	X		30-40	
Nevada bluegrass	POWE3		X	--	---	--
Sandberg bluegrass	POSE		X	-	-	
Thurber seedling	STIE1	10-20	X	10-25	2-8	
Basin wildrye	ELCI2	2-10	X	-	5-10	-
Bluebunch wheatgrass	AGSP	40-60	X	20-40	25-40	--
Bluegrass	POA++		---	5-10	2-5	--
Wyoming big sagebrush	ARTEW	10-20		-	---	--
Antelope bitterbrush	POTR2	2-5			2-10	
Big sagebrush	ARTE2	15-25			---	
Low sagebrush	ARAL1	-	--	10-20		
Mountain big sagebrush	ARVA2	10-20	X		10-20	- -
Range site number		023XT039MV	023XT024MV	023XT031MV	023XT007MV	none
Potential production (lb/acre)						
Favorable years		900	700	900	1400	
Normal years		700	500	700	1200	
Unfavorable years		500	100	500	900	

1003--BOCHLAKE-MURBLE LAND ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number				
		BOCHLAKE	MURBLE LAND	Inclusion 1	Inclusion 2	Inclusion 3
Thurber needlegrass	STIN2	10-20		10-20	10-25	5-10
beak wildrye	ELCT1	2-10	-	2-10	-	2-10
bluestem wheatgrass	ADSP	40-60		40-60	20-30	60-70
bluegrass	POA++		-		5-10	---
Wyoming big sagebrush	ARTW	10-20		10-20		-
antelope bitterbrush	POTR2	2-5	-	2-5	---	2-5
big sagebrush	ARTS2	15-25		15-25		-
low sagebrush	ARLE	---	---	---	10-20	---
mountain big sagebrush	ARVM2	10-20	---	10-20	---	10-20
Range site number		023XY019NY	none	023XY019NY	021XY011NY	023XY016NY
Potential production (lb/acre)		300		300	300	1500
Favorable years		700		700	700	1100
Normal years		500		500	500	800
Unfavorable years		500		500	500	800

1970--JAYNEK-VERDICO ASSOCIATION

(absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight) of plants on major soils and inclusions					
Common plant name	Plant symbol	Soil name or inclusion number					
		JAYNEK	VERDICO	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA	---	---	---	2-5		
Idaho fescue	FEID					10-50	
Indian ricegrass	ORRY	2-8	2-8				5-15
Nevada bluegrass	PONE1	-	-	2-8		-	
Sandberg bluegrass	POSE	1-5	2-5		-		2-5
Thurber needlegrass	STNE2	15-30	15-30		15-20	2-8	20-40
Webber needlegrass	STWA						2-8
basin wildrye	ELCI2		-	65-75	5-10	-	
bluestem wheatgrass	AQSP				30-40	15-30	-
bluegrass	POA+	---	-			2-8	
bottlebrush squirreltail	BISY	2-5	2-5			-	2-5
desert needlegrass	STSP1	3-10	1-10	---	-	-	---
Lobelia sagebrush	ABRL	10-45	10-45				
Wyoming big sagebrush	ABYM	-	-	-	---	---	20-30
antelope bitterbrush	BUTR2	---	---	---	2-10	---	-
basin big sagebrush	ABBT		-	5-10		-	---
big sagebrush	ABTR2				15-25		
ephedra	EPHE	2-5	2-5				
low sagebrush	ABAR2				-	10-20	
rubber rabbitbrush	CHRA1	-	-	1-5		-	-
shadscale	LYCO	2-5	2-5	-		-	
spiny huppage	GRSP	2-5	2-5				2-5
Range site number		023XY047NV	023XY047NV	023XY009NV	023XY020NV	023XY017NV	023XY008NV
Potential production (lb/acre)							
Favorable years		500	500	5500	1100	900	600
Normal years		350	350	4500	900	700	400
Unfavorable years		200	200	2500	400	300	400

1995 -CORRAL-MAMALA ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight) of plants on major soils and inclusions				
Common plant name	Plant symbol	Soil name or inclusion number--				
		CORRAL	MAMALA	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	---	---	---	9-20	---
Indian ricegrass	ORRY	5-15	---	15-25	---	---
Nevada bluegrass	POHE1	---	---	---	---	2-8
Sandberg bluegrass	POSE	2-5	---	---	---	---
Rharbar needlegrass	STNE2	20-40	10-25	---	5-10	---
Webber needlegrass	STNE	2-5	---	---	---	---
basin wildrye	ELCY2	---	---	3-8	5-10	45-75
bluebunch wheatgrass	ADSP	---	20-80	---	25-35	---
bluegrass	POHE+	---	5-10	---	---	---
bottlebrush squirreltail	SIHY	2-8	---	---	---	---
needleandthread	STCO4	---	---	20-40	---	---
thickspike wheatgrass	ADDA	---	---	2-5	---	---
Wyoming big sagebrush	ARTW	20-30	---	---	---	---
antelope bitterbrush	PUTR2	---	---	---	15-25	---
basin big sagebrush	ARTT	---	---	---	---	5-10
big sagebrush	ARTR2	---	---	10-20	---	---
low sagebrush	ARAR2	---	10-20	---	---	---
mountain big sagebrush	ARVA1	---	---	---	5-15	---
rubber rabbitbrush	CHRA2	---	---	---	---	1-3
spiny hopsgoe	GUSP	2-8	---	2-5	---	---
Range plant number		011XY006W	021XY001W	021XY0051W	011XY018W	021XY0009W
Potential production (lb/acre)						
Favorable years		800	900	900	1600	5500
Normal years		600	700	700	1200	4800
Unfavorable years		400	500	500	900	2500

1105 - FRESHLY VERY STONY LOAM, 2 TO 15 PERCENT SILT

Absence of an entry indicates that the named plant is not a key species in the potential native plant community

Common plant name	Plant symbol	Percentage composition and production dry weight of plants in major soils and inclusions		
		Soil name or inclusion number		
		FRESHLY	Inclusion 1	Inclusion 2
Hardberg bluegrass	POBE	30-45		5-10
Thurber needlegrass	STNE	--	30-40	--
Rubber needlegrass	STNE	2-5	5-15	--
bluethroat wheatgrass	AGSP	--	2-5	--
bluegrass	POBE		5-10	--
Pottsbrough squarreltail	STNE	--		10-20
eriodontus	STNE		--	1-5
lupine	LUPIN	--		1-3
Douglas rabbitbrush	CRVIA		2-5	
low sagebrush	ARAB	30-45	20-30	2-10
rubber rabbitbrush	CRVIA	--	--	30-50
Range site number		02117021MV	02117055MV	02117003MV
Potential production (lb./acre)				
Favorable years		100	600	350
Normal years		200	450	225
Unfavorable years		150	300	150

1110 INDIAN CREEK-SUPPARDY ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number				
		INDIAN CREEK	SUPPARDY	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORRY	---	5-15	5-15	---	5-15
Lewenberg bluegrass	POSH	---	2-5	2-5	---	2-5
Thurber needlegrass	STW2	30-40	10-40	10-40	10-25	20-40
Webber needlegrass	STW1	5-15	2-8	2-8	-	2-8
bluebonnet wheatgrass	AGSF	2-8	---	---	20-50	---
bluegrass	POLE+	5-10	---	---	5-10	---
bottlebrush squirreltail	BIKY	---	2-5	2-5	-	2-5
Douglas rabbitbrush	CHV1	2-5	---	---	---	---
Wyoming big sagebrush	ARTW	---	10-30	10-15	---	20-30
low sagebrush	ARAB	20-30	---	-	10-20	---
spiny hopsage	GRSP	---	2-5	2-5	---	2-5
Range site number		011KY055NY	011KY006NY	011KY008NY	011KY031NY	011KY006NY
Potential production lb/acre)						
Favorable years		600	800	800	900	500
Normal years		450	600	600	700	600
Unfavorable years		100	400	400	500	400

1115 - LOEFFTUS-MERMAN COMPLEX 0 TO 2 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential native plant community;

		Percentage composition and production (dry weight) of plants on major soils and inclusions					
Common plant name	Plant symbol	Soil name or inclusion number					
		LOEFFTUS	MERMAN	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Belted rush	JOBA		-				2 8
Indian ricegrass	CHRY		2 5		5 15	-	-
Common alkaligrass	POLE	2 8	-	-			-
Nevada bluegrass	POKE3	10-20		-	-	2 8	40 40
Sandberg bluegrass	POG2	-			2 5		
Thurber seedgrass	STRE2			5 15	20 40	-	-
Wabber seedgrass	STWE			-	1-2	-	-
basin wildrye	ELCI2	50-50	5-20	30 40	-	45-75	2 8
bluegrass	POA++			10-40			-
bottlebrush squirreltail	SIFY	-	2-5	-	1-5	-	-
island saltgrass	DISP62	2 8					
meadow barley	BOBE2	-	-				2-4
sedge	CAREK						10-20
globemallow	SPEAR	-	1 2	-	-	-	-
lupine	LUPIN			2 8			
thelypody	TRILY	-	2 4	-		-	
Wyoming big sagebrush	ARTRW				20 30		
basin big sagebrush	ARTBT	-	-	-		5 10	
big sagebrush	ARTL2		10-25	15 25			
black greasewood	SAVZ4	5-10	20-30	-		-	-
rubber rabbitbrush	CENAS	-				1 3	-
spiny hopsage	GRSP		5-15		2 5		-
threadleaf rubber rabbitbrush	CENACT	2-5				-	
Range site number		023XY010NV	024XY022NV	025XY062NV	025XY006NV	025XY009NV	025XY029NV
Potential production (lb/acre):							
Favorable years		2700	800	1100	800	5500	4000
Normal years		1700	600	800	600	4500	3000
Unfavorable years		1000	250	600	400	2500	2000

11110 - MCCORMEL VERY STONY SANDY LOAM. 1 TO 3 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight) of plants on major soils and inclinations		
Common plant name	Plant symbol	Soil name or inclination number--		
		MCCORMEL	Inclination 1	Inclination 2
Indian ricegrass	ORRY	5-15	10-20	2-10
Landsberg bluegrass	POBR	2-8	-	2-5
Timber needlegrass	STYR2	15-25	-	---
Basin wildrye	ELCIS	-	---	10-20
bottlebrush squarreltail	SIXY	2-5	5-10	2-5
globe-willow	SPHAW	1-2	-	---
Anderson penstemon	PRAN1	-	-	2-8
Wyoming big sagebrush	ARTW	10-15	-	-
basin big sagebrush	ARTR	-	-	15-25
black greasewood	RAYK4	-	-	2-8
bad sagebrush	ARSP5	---	5-15	-
other shrubs	SEER	-	-	2-8
shadscale	ATCO	-	40-50	-
spiny hopeweed	GRSP	5-20	5-15	15-30
winterfat	STLA5	-	2-5	---
Range site number		D841T010NY	S141T065NY	S141T041NY
Potential production lb/acre:				
Favorable years		700	900	1000
Normal years		450	700	900
Unfavorable years		300	500	600

1121--MCCOMBKI, GRAVELLY FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Percentage composition and production (dry weight) of
plants on major soils and inclussions

Common plant name	Plant symbol	Soil name or inclusion number--			
		MCCOMBKI	Inclusion 1	Inclusion 2	Inclusion 3
Indigo ricegrass	GRIF	5-15	10-20	5-15	-
Nevada bluegrass	POWE1	-	-	-	2-10
Sandberg bluegrass	POGE	2-8	-	2-5	---
Thurber needlegrass	STTH2	15-20	---	20-40	-
Wabner needlegrass	STW8	---	-	2-4	-
basin wildrye	ELC12	-	-	-	40-60
bottlebrush squarreltail	SEST	2-5	5-10	1-5	-
western wheatgrass	LOSM	-	-	-	2-10
globe-mallow	SPHAR	1-2	---	-	---
povertyweed	IVAX	-	-	-	2-5
cheatgrass	TRBL	-	-	---	1-1
Wyoming big sagebrush	ANTRW	20-30	-	20-30	-
basin big sagebrush	ANTRT	-	-	-	5-15
bud sagebrush	AKSP5	-	5-15	-	-
shadscale	ATCO	-	40-50	---	-
spiny hopsage	GRSE	5-20	5-15	2-5	-
winterfat	EULAS	-	2-5	-	---
Range site number		0242Y020NF	0242Y020NF	0232Y020NF	0232Y020NF
Potential production (lb/acre):					
Favorable years		700	900	800	1000
Normal years		450	700	600	1000
Unfavorable years		300	500	400	1300

1125- HALVERT-JAYNEE-TURNISON ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or inclusion number					
		HALVERT	JAYNEE	TURNISON	Inclusion 1	Inclusion 2	Inclusion 3 Inclusion 4
Cunby blongrass	POCA		---	---	---	2-5	--
Idaho fescue	FWID						X
Indian ricegrass	INDRY		2-8		5-15		--
Nevada bluegrass	PONE		---	---	---		X
Sandberg bluegrass	POSE		2-5	5-10	2-8		X
Thurber needlegrass	STYB2	5-15	15-30	--	20-40	15-20	X
Wabber needlegrass	STYB				2-8		
basin wildrye	BLC12	---	---	---	---	5-10	X
bluebonnet wheatgrass	ASBP	40-60				10-40	X
bluegrass	POA++	2-8		--		--	
bottlebrush squirreltail	SIBY		2-5	10-20	2-8		
creeping wildrye	KLTK3		--	---	--	--	5-15
desert needlegrass	STSP3		2-10	---	---	---	--
mat mahly	MMML				--		5-10
Rocky helianthus	HRAD	2-5				--	--
serotoma	SR10Q		---	1-5	---	--	
lupine	LOP1K	---	---	1-3	--	---	--
hepartip hawkbeard	CHAC2	1-2		--	--		
Lehman's sagebrush	LEHAR1	10-20	30-45				--
Wyoming big sagebrush	ARYBW	--		---	20-30	---	
antelope bitterbrush	PUTB2					2-10	--
big sagebrush	ARTB2		--	--	---	15-25	---
sphaera	SPHED		2-5				--
low sagebrush	ARAR3	--	--	2-10	--	--	---
mountain big sagebrush	ARTA2		--	---	--		X
rubber rabbitbrush	CHRA2	--	--	10-50	---	--	2-5
shadscale	ATCO		2-5				
silver sagebrush	ARCA13				--		30-40
spiny hopsgum	GRSP	--	2-5	---	2-5		

Range site number 021XY037WV 023XY047WV 013XY001WV 023XY006WV 013XY010WV 023XY024WV 013XY001WV

Potential production lb/acre):

Favorable years	720	500	150	800	1100	700	1200
Normal years	600	350	225	800	900	500	1400
Unfavorable years	400	200	150	400	500	300	700

1110 SOUTHERN ROCK OUTCROP COMPLEX, 4 TO 10 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number			
		SOUTHERN	ROCK OUTCROP	Inclusion 1	Inclusion 2
Indian ricegrass	ORIT	5-15		-	5-15
Sandberg bluegrass	POSE	2-5		---	2-5
Thurber needlegrass	STNE	30-40	---	10-20	20-40
Nebler needlegrass	STNE	2-5			2-5
Basin wildrye	KLCIS	---	---	2-10	---
Bluebunch wheatgrass	AGSP			40-60	
Bottlebrush squarletail	SIST	2-5			2-5
Wyoming big sagebrush	ARTW	20-30		10-20	20-30
Antelope bitterbrush	POTEL	-	-	2-5	
Big sagebrush	ARVA		-	15-25	
Mountain big sagebrush	ARVA2	---		10-20	---
Spiny hopsage	SRST	2-5	-	-	2-5
Range site number		021XY006NV	2006	021XY039NV	021XY006NV
Potential production (lb/acre):					
Favorable years		600		900	800
Normal years		600		700	600
Unfavorable years		400		500	400

1111 -SODDIE-ROCK OUTCROP COMPLEX 10 TO 50 PERCENT SLOPES

absence of an entry indicates that the named plant is not a key species in the potential native plant community

		Percentage composition and production (dry weight) of plants on major soils and inclusions				
Common plant name	Plant symbol	Soil name or inclusion number				
		SODDIE	ROCK OUTCROP	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	-	-	2 3	---	- -
Indian ricegrass	ORRY	5 15	-	-	5 15	-
Nevada bluegrass	POHE1	---	-	-	---	2-8
Jandberg bluegrass	POSE	2 5	-	-	2 8	---
Timber needlegrass	SITEL	20 40	-	15 20	15-25	-
Webber needlegrass	STWE	2 8	-	-	-	-
basin wildrye	ELCIS	-	---	5 10	---	65-75
blackbrush wheatgrass	AGSP	-	-	10 40	-	-
bottlebrush squirreltail	SITRY	2 5	-	-	2 5	-
globemallow	SPHAB	- -	---	---	1-2	---
Wyoming big sagebrush	ARTSW	30 30	-	-	10-35	-
antelope bitterbrush	POTEL	-	-	2 10	-	-
basin big sagebrush	ARTAT	---	-	---	-	5-10
big sagebrush	ARTS2	-	-	15 25	-	---
rubber rabbitbrush	CHRAJ	---	-	---	---	1 3
spiny hopsage	GRSP	2 5	-	-	5 20	-
Range site number		021XY001MV	none	021XY010MV	021XY020MV	021XY009MV
Potential production (lb/acre):						
Favorable years		800		1100	700	5500
Normal years		500		380	450	4500
Unfavorable years		400		400	300	2500

1135--MCNATT-OLD CAMP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of plants on major soils and inclusions						
Common plant name	Plant symbol	Soil name or inclusion number--				
		MCNATT	OLD CAMP	Inclusion 1	Inclusion 2	Inclusion 3
Cashy bluegrass	FOCA			---		2 5
Indian ricegrass	ORRY	5-15	5 15	--	5-15	2 5
Sandberg bluegrass	ROSE	2 5	2 5		2 5	
Thorber needlegrass	STNR2	20-40	20 40		20-40	15-20
Nahler needlegrass	STNR	2-8	2 8		2-8	15 20
Basin wildrye	ELCIS	---	-	--	-	5 10
Blindbrush wheatgrass	AGSP				-	30 40
Bottlebrush squirreltail	STBY	2 5	2-5	-	2 5	30 40
Wyoming big sagebrush	ARTW	20-30	20 30		20 30	-
Antelope bitterbrush	POTR1	---	-	-	-	2-10
Big sagebrush	ARTB2	-	-			15-25
Spiny hopsage	GRSP	2 5	2 5		2 5	15 25
Range site number		023XY004WY	023XY006WY	code	023XY006WY	023XY020WY
Potential production (lb/acre):						
Favorable years		800	800		800	1200
Normal years		600	600		600	900
Unfavorable years		400	400		400	600

1140 VALLEY VERY FINE SANDY LOAM 0 TO 2 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of plants on major soils and inclussions				
Common plant name	Plant symbol	Soil name or inclusion number		
		Valley	Inclusion 1	Inclusion 2
basin wildrye	BLC12	25 65		18 30
bottlebrush squirreltail	BLRY	- -	5 10	2 10
creeping wildrye	BLTR1	5 15		
inland saltgrass	DISP1	- -	- -	2 5
western wheatgrass	WHEG	5-15	- -	
basin big sagebrush	BSRT	10 15		- -
black greasewood	SAVG4	2 4	15 30	50 65
bud sagebrush	ARSP3		2 8	- -
seepweed	SWAK1	- -	2 8	
shadscale	ATCO		10-50	- -
Range site number		024XY004NV	024XY003NV	034XY008NV
Potential production (lb/acre):				
Favorable years		1500	600	700
Normal years		1100	450	450
Unfavorable years		600	100	100

1141. VALLEY LAMBERTON-PAYPOINT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number				
		VALLEY	LAMBERTON	PAYPOINT	Inclusion 1	Inclusion 2
Indian ricegrass	ORRY	2 5	5 15	---		5 15
Nevada bluegrass	POHE3				2 10	---
Sandberg bluegrass	POHE		2 5		---	2 5
Thurber needlegrass	STHE2	---	10-40	5-15		20 40
Webber needlegrass	STWE	-	2-8	-	---	2 4
basin wildrye	WLCY2	5-20	---	30-40	40 60	
bluegrass	POA++			30 40	--	---
bottlebrush squirreltail	GRY	2 8	2 5			2 5
western wheatgrass	AGSM	---			2 10	---
globemallow	SPHA2	1 2			-	---
lupine	LUPIN		---	2 5	---	
povertyweed	IVAX	--		---	2 5	-
thalypody	THELY	2-4	---		1 3	
Wyoming big sagebrush	ARTW	--	20 30	---		20 30
basin big sagebrush	ARTY				2 15	
big sagebrush	ART2	10-25		15-25	--	---
black greasewood	ANVE4	20-30				-
spiny hopsgage	CHFP	5-15	1-5	-	--	2 5
Range site number		024XT012NV	024XT006NV	011XT012NV	024XT008NV	033XT006NV
Potential production (lb/acre)						
Favorable years		800	800	1100	1000	800
Normal years		600	600	800	1000	600
Unfavorable years		350	400	600	500	400

1145 - FERRASSIE SILT LOAM. 0 TO 2 PERCENT SLOPES, RARELY FLOODED

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Percentage composition and production (dry weight) of plants on major soils and inclusions					
Common plant name	Plant symbol	Soil name or Inclusion number			
		FERRASSIE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	CHRY		--	25 11	- -
basin wildrye	SLC12	5-15		3-5	
bottlebrush squirreltail	SIRY		5 10		
inland saltgrass	DI9932	5-10	---		---
needleandthread	STC04	---	--	2 10	--
black greasewood	SAVE4	50-75	13-30	35 45	
bud sagebrush	AE995		2 8		---
sagebrush	STAE0	--	2 4	- -	
shadscale	ATC0	---	10 50	---	---
spiny hopsage	GRSP	-	---	5 15	
Range site number		024XY011NV	024XY003NV	024XY016NV	none
Potential production lb/acre					
Favorable years		500	600	600	
Normal years		350	450	400	
Unfavorable years		200	300	250	

1150 SARAPE-SANDROCK-TUFFO ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or inclusion number--						
		SARAPE	SANDROCK	TUFFO	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	GRKY	5-15	5-15	15-30			2-8	
Sandberg bluegrass	POSK	2-5	2-5				2-5	---
Taubert needlegrass	STNE	20-40	20-40	---	5-15	-	15-30	---
Webber needlegrass	STNE	2-8	2-8			5-15	--	--
basin wildrye	ELCIZ	---	---	2-8	30-40	---	---	--
bluegrass	POA++	-	-	--	30-40			
bottlebrush squirreltail	GRKY	2-5	2-5	5-10			2-5	---
desert needlegrass	STNE	--	--	--	---	--	2-10	---
lupine	LUPIN	---	---	---	2-5	---	---	---
Douglas rabbitbrush	CEVIL	---	---	---	---	2-5		
Lehman's sagebrush	BRARL	---	---	---	---	---	30-45	---
Wyoming big sagebrush	ARTW	20-30	20-30	30-40	---	---	---	---
antelope bitterbrush	PUTR	---	---	7-10	---	---	---	-
big sagebrush	ARTW				15-25			
sphaeralcea	SPHEA	---	---	---	---	---	2-5	---
gypsophila	ATCO	---	---	---	---	---	2-5	--
spiny hopbush	CHSP	2-5	2-5	2-10	---	---	2-5	
winterfat	SULAL			7-10	-		-	

Range site number	021XY006NV	021XY006NV	021XY006NV	021XY006NV	021XY006NV	021XY006NV	none
Potential production (lb/acre):							
Favorable years	800	800	350	1100	600	500	
Normal years	600	600	200	800	450	350	
Unfavorable years	400	400	100	600	300	200	

1151 SARAKE TUFTO YELLOWHILLS ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight of plants on major soils and inclusions)						
Common plant name	Plant symbol	Soil name or inclusion number				
		SARAKE	TUFTO	YELLOWHILLS	Inclusion 1	Inclusion 2
Canby bluegrass	POCA	---	2-5	-	-	-
Idaho fescue	FEID	-	-	40-50	-	-
Indian ricegrass	ORRY	5-15	-	-	-	-
Sandberg bluegrass	POSB	2-5	-	-	-	-
Tarber needlegrass	ATTE2	20-40	15-20	10-20	-	10-25
Webber needlegrass	STWE	2-5	-	-	-	-
basin wildrye	ELC12	-	5-10	2-5	-	-
bluebunch wheatgrass	AGSP	-	10-40	2-8	-	20-50
bluegrass	POA++	-	-	-	-	5-10
bottlebrush squirreltail	SLRY	2-5	-	-	-	-
Wyoming big sagebrush	ARTW	20-30	-	-	-	-
antelope bitterbrush	POTR2	-	3-10	-	-	-
basin big sagebrush	ARTT	-	-	15-25	-	-
big sagebrush	ART3	-	15-25	-	-	-
low sagebrush	ARAB	-	-	-	-	10-20
spiny hopsage	CRSP	2-5	-	-	-	-
Range site number		022XY001MV	022XY010MV	022XY0*1MV	none	022XY011MV
Potential production (lb/acres)						
Favorable years		800	1100	1000		900
Normal years		600	100	800		700
Unfavorable years		400	600	600		500

1115- MADRLINE-WINEMILE COMPLEX, 4 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or inclusion number					
		MADRLINE	WINEMILE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
canby bluegrass	POCA	---	-	---	2 5	2 5	-
Idaho fescue	FEID	5 30	30-50	---	---	---	30 40
Timber seedling	STTEJ	5 10	2 8	10-25	15 20	15 20	2 8
bein wildrye	ELCII	5 10	---	-	5-10	5 15	5 10
bluebonnet wheatgrass	AGSP	25 35	15 30	20-30	30-40	30-40	25 40
bluegrass	POA++	-	2 8	5 10	---	---	2 5
antelope bitterbrush	POTRJ	15 25	---	---	2 10	2-10	2 10
big sagebrush	ARTER	---	---	---	15 25	15 25	---
low sagebrush	ANARJ	--	10-30	10-20	---	--	---
mountain big sagebrush	ARVAJ	5-15	--	---	---	---	10-20
Range site number		023XT015WV	023XT017WV	023XT018WV	023XT020WV	023XT021WV	023XT027WV
Potential production (lb/acre):							
Favorable years		1800	900	900	1100	1100	1600
Normal years		1200	700	700	900	900	1200
Unfavorable years		900	500	500	600	600	900

1160--WFLG-SOCKLAKS-ROCK OUTCROP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or inclusion number--				
		WFLG	SOCKLAKS	ROCK OUTCROP	Inclusion 1	Inclusion 2 / Inclusion 3
Indian ricegrass	ORRY					5-15
Ladberg bluegrass	POSE	--	--	---	---	2-5
Thurber needlegrass	STNE2	5-15	10-20	---	--	30-40
Wabber needlegrass	STNE				1-15	3-8
basin wildrye	ELC12	--	2-10	---	--	---
blu bunch wheatgrass	AGSF	40-60	40-60			40-60
bluegrass	POA++	3-8				2-8
bottlebrush squawreltail	SIRY					2-8
Hooker balsamroot	HAR0	3-5				2-5
tupeetip hawkbeard	CRAC2	1-2			--	1-2
Douglas rabbitbrush	CRV18			--	2-8	---
Lahontan sagebrush	ARARL+	10-20			--	10-20
Wyoming big sagebrush	ARTW	---	10-20			--
antelope bitterbrush	FUTW2	---	3-5	---	---	---
big sagebrush	ARTW	---	15-25			
mountain big sagebrush	ARTW2	--	10-20	--		---
spiny hopsage	GRSF					2-5
Range site number		023KY017WV	023KY033WV	2005	023KY093WV	023KY006WV
Potential production (lb/acre):						
Favorable years		700	900		800	700
Normal years		600	700		650	600
Unfavorable years		400	500		300	400

1162. NEVADA-NITRAC ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production dry weight of plants on major soils and inclusions						
Common plant name	Plant symbol	Soil name or inclusion number--				
		NEVADA	NITRAC	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	---	---	---	---	1-5
Idaho fescue	FEID	---	---	---	---	10-50
Randberg bluegrass	PORE			10-45		---
Thurber needlegrass	STNE	10-25	10-25		30-40	15-20
Wahler needlegrass	STNE			2-5	5-15	
Basin wildrye	ELCIN					8-10
Bluestem wheatgrass	AGSP	20-50	20-50		2-8	15-30
Bluegrass	POA++	5-10	5-10		5-10	2-8
Douglas rabbitbrush	CHVIR				1-5	---
Adelphiops bitterbrush	POTR	---		---	---	2-10
Big sagebrush	ARTE					15-25
Low sagebrush	ARAR	10-20	10-20	10-45	30-40	10-30
Range site number		023XY031MV	023XY031MV	023XY021MV	023XY059MV	023XY020MV
Potential production (lb. acre)						
Favorable years		900	900	300	600	1100
Normal years		700	700	200	450	900
Unfavorable years		500	500	150	300	600

1163 NEVADA DESERT COMPLEX 1 TO 15 PERCENT SLOPES

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or Inclusion number					
		NEVADA	DESERT	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA		2-5	2-5	2-5	2-5	X
Cusick bluegrass	POCU1		--				X
Thurber needlegrass	STTH3	10-25	15-20	15-20	15-20	15-20	--
basin wildrye	SLC12		5-10	5-10	5-10	5-10	
blues bunch wheatgrass	ABSF	20-50	30-40	30-40	30-40	30-40	X
bluegrass	POA++	5-10					---
prairie junegrass	POPY	---	---	---	---	---	X
gobosopa bitterbrush	POPR2		2-10	2-10	2-10	2-10	
big sagebrush	ART22	--	15-25	15-25	15-25	15-25	
low sagebrush	ABAB3	10-20	---	---	---	---	X
Range site number		021XY011MV	021XY020MV	021XY020MV	021XY020MV	021XY020MV	021XY021MV
Potential production lb./acre:							
Favorable years		900	1100	1100	1100	1100	600
Normal years		700	900	900	900	900	400
Unfavorable years		500	600	600	600	600	200

1164 NEVADA-ARIZONA ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or Inclusion number--					
		NEVADA	ARIZONA	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA	---	2 1	--	---		
Indian ricegrass	GRSV				5 15		
Sandberg bluegrass	POSE	---			2-5	--	-
Thurber needlegrass	STNE	10-25	15 20	5-15	20-40	30-40	
Webber needlegrass	STNE	---			3-8	5-15	-
basin wildrye	ELC12		5-10		---		
bluebunch wheatgrass	AGSP	10-20	10 40	40 60		2 8	---
bluegrass	POA++	3 10	--	2 8		3 10	
bottlebrush squirreltail	BIHV				2 5	---	--
Snake halimolobos	HALO	---	---	2-5			
spartan hawkbeard	CRAC	--	---	1-2		---	--
Douglas rabbitbrush	CEV14	--	--			2 5	
Lebanon sagebrush	ARAR2		---	10 20		---	---
Wyoming big sagebrush	ARTR0	--		---	20-30		---
antelope bitterbrush	PUT13	--	3 10				
big sagebrush	ARTR2		15 25				
low sagebrush	ARAR3	10-20	---	---	---	20-30	---
spiny hopyard	GRSP	---	---	---	2-5		--
Range site number		023XY031NV	023XY020NV	023XY037NV	023XY006NV	023XY011NV	none
Potential production lb./acre)							
Favorable years		900	1,000	700	800	500	
Normal years		700	900	600	600	450	
Unfavorable years		500	600	400	400	100	

1145 NEVADA-WITBAC BUDRIM ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

		Percentage composition and production (dry weight) of plants on major soils and inclusions						
Common plant name	Plant symbol	Soil name or inclusion number--						
		DEVADA	WITBAC	BUDRIM	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Casby bluegrass	FOCA			X	--	-		
Cusack bluegrass	FOCU1	--		X				--
Sandberg bluegrass	FOSE			---	5-10	--	10-45	--
Thurber needlegrass	STTB1	10-25	10-25	-		10-20	-	30-40
Webber needlegrass	STWB			--	---		2-5	5-15
basin wildrye	ELC12		-			2-10	---	---
bluebunch wheatgrass	AGSF	20-50	20-50	X	---	40-60		2-5
bluegrass	FOA1+	5-10	5-10				-	5-10
bottlebrush squirreltail	SIBV				10-30	-		
prairie junegrass	KOPY			X			---	-
serotoma	SK10G			-	1-5	---		
lupine	LUPIN	--		-	1-1	-	---	---
Douglas rabbitbrush	CHV16				---	-		2-5
Wyoming big sagebrush	ARTM					10-20	--	---
antelope bitterbrush	FUTR2	-			---	2-5	-	---
big sagebrush	ARTB1	-		--		15-25		
low sagebrush	ARAR1	10-20	10-20	X	2-10		30-45	20-30
mountain big sagebrush	ARV12					10-20		
rubber rabbitbrush	CHRA2	-			10-50			--
Range site number		023XY031MV	023XY011MV	023XY091MV	023XY0401MV	023XY013MV	023XY011MV	023XY059MV
Potential production lb/acre ¹		900	900	600	350	900	300	600
Favorable years		700	700	400	325	700	200	450
Normal years		500	500	200	150	500	150	300
Unfavorable years								

1166--NEVADA-STEINER ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community

		Percentage composition and production (dry weight) of plants on major soils and inclusions			
Common plant name	Plant symbol	Soil name or inclusion number			
		NEVADA	STEINER	Inclusion 1	Inclusion 2
Indian ricegrass	ORRY		---	5-15	-
Sagebrush bluegrass	POSE	-		2 5	
Thurber needlegrass	TTUE1	10-25	10-25	20 40	10 20
Webber needlegrass	STWE	- "	---	2 5	
basin wildrye	ELC12				1 10
bluestem wheatgrass	AG30	20-50	20-50	-	40 60
bluegrass	POA++	1 10	5 10		
bottlebrush squirreltail	SIFY	-	---	2-5	
Wyoming big sagebrush	ARTRW			10-20	10 20
antelope bitterbrush	POPE2	-	---		2 5
big sagebrush	ARTR2				25-28
low sagebrush	ARTR5	10-20	10-20	---	
mountain big sagebrush	ARVA2				10 20
spiny hopsage	GRSP	-		2-5	- "
Range site number		021XY011W	021XY031W	021XY006W	021XY039W
Potential production (lb/acre)					
Favorable years		500	500	500	500
Normal years		700	700	500	700
Unfavorable years		500	500	400	500

1167 NEVADA-REFUGI ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants on major soils and inclussions)					
		Soil names or inclusion number					
		NEVADA	REYGLT	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA		2 5				
Idaho fescue	FEID		-		---	5-20	--
Thurber needlegrass	STTH	10 23	15-10	10 20	10-20	5-10	10 40
Nehar needlegrass	STWE		-		--	---	5-15
basin wildrye	ELCYS		5 10	2 10	2 10	5 10	
bluestem wheatgrass	AGSF	20 50	30-40	40-60	40-60	25-35	2 8
bluegrass	POH++	5-10	--		---	---	5-10
Douglas rabbitbrush	CEVII	--				--	2 5
Wyoming big sagebrush	ARTEN		-	10 20	10 20	---	-
antelope bitterbrush	POTR2		2 10	2 5	2 5	15 25	
big sagebrush	ARYE2		15 25	15 25	15-25	---	-
low sagebrush	ARAP4	10 20					10 10
mountain big sagebrush	REYB2		-	10 20	10 20	5 15	
Range site number		021XY031HV	021XY020HV	021XY019HV	021XY019HV	021XY015HV	021XY053HV
Potential production (lb/acre)							
Favorable years		800	1100	900	900	1500	600
Normal years		700	900	700	700	1200	450
Unfavorable years		500	600	500	500	900	300

124 NEVADA EXTREMELY CORREL LOAM, 4 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of plants on major soils and inclusions						
Common plant name	Plant symbol	Soil name of Inclusion number				
		NEVADA	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Thurber needlegrass	STNE2	10-25	--	10-20	30-40	10-25
Wabber needlegrass	STNE	--	--	2-10	5-15	--
basin wildrye	STC12	--	--	2-10	--	--
bluebonnet wheatgrass	AGSP	20-50	--	40-60	2-8	20-50
bluegrass	BOA++	5-10	--	--	5-10	5-10
Douglas rabbitbrush	CHV14	--	---	---	2-3	--
Wyoming big sagebrush	ARTW	--	--	10-20	--	--
antelope bitterbrush	POTL2	--	--	2-5	--	--
big sagebrush	ARTL2	--	--	10-25	--	---
low sagebrush	ARAR2	10-20	--	--	10-20	10-20
mountain big sagebrush	ANVL2	--	--	10-20	--	--
Range site number		021KY011NV	none	021XT012NV	023XY029NV	021XT031NV
Potential production (lb/acre):						
Favorable years		500		500	600	500
Normal years		700		700	450	700
Unfavorable years		500		500	300	500

1170 NEVADA-BUCKLEBARK ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or inclusion number--					
		NEVADA	BUCKLEBARK	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cusby bluegrass	POCA					X	
Cusick bluegrass	POCU3					X	
Idaho fescue	FEID				10-40		X
Nevada bluegrass	PONE3						X
Sandberg bluegrass	POSB						X
Thurber needlegrass	STTH3	10-25	10-20	5-10	2-8		X
basin wildrye	ELC13		2-10	2-10	5-10		X
bluebunch wheatgrass	ACBW	20-60	40-60	60-70	25-40	X	X
bluegrass	POB++	5-10			2-5		
prairie junegrass	KOPY					X	
Wyoming big sagebrush	ARTM		10-20				
antelope bitterbrush	PUTE2		2-5	2-8	2-10		
big sagebrush	ART2		15-25				
low sagebrush	ARAL2	10-20				X	
mountain big sagebrush	ARVA2		10-20	10-20	10-20		X
Range site number		021XN031NV	023XN033NV	023XN016NV	021XN007NV	023XN091NV	023XN024NV
Potential production (lb/acre)							
Favorable years		900	500	1500	1600	600	700
Normal years		700	700	1400	2200	400	800
Unfavorable years		500	500	800	900	200	300

1171--NEVADA-INDIAN CREEK ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number--				
		NEVADA	INDIAN CREEK	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA			3 5	---	---
Idaho fescue	FEID	-	---	-	-	5 20
Thurber needlegrass	STYR1	10 25	90 40	15 20	10-25	5-10
Nabber needlegrass	STNE	-	5-45	-	-	-
basin wildrye	ELW12			5 10	---	5 10
bluebunch wheatgrass	AGSP	20 50	2 8	30-40	20-50	25 15
bluegrass	POA++	5-10	5 10	-	5 10	---
Douglas rabbitbrush	CHV14		2 5		---	---
sagebrush bitterbrush	POTR2	-	-	3-10	-	15 25
big sagebrush	AKTR2	---	-	15 25	---	---
low sagebrush	ARSR3	10-20	20 30	---	10-20	-
mountain big sagebrush	ARVR2	---	-	---	---	5-15
Range site number		023XY031NV	023XY059NV	023XY026NV	023XY031NV	023XY019NV
Potential production (lb/acre)						
Favorable years		900	600	1100	900	1500
Normal years		700	450	900	700	1200
Unfavorable years		500	300	600	500	900

1172 NEVADA-MADRELINK-WINDMILL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or inclusion number--						
		NEVADA	MADRELINK	WINDMILL	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Idaho fescue	FEIN		5-20	30-50		30-50	--	10-20
Nevada bluegrass	POHE1	---	---	--	---	---	40-50	2-5
Thurber needlegrass	STYH2	10-25	5-10	2-5	10-25	2-5		--
basin wildrye	ELC12	---	5-10	---			--	--
bluemeadow wheatgrass	ADSP	20-30	25-35	15-30	20-50	15-30		
bluegrass	POHE+	5-10	--	2-5	5-10	2-5		--
mountain brome	BRCA5		--	--	--	---		10-20
needlegrass	STYH	---	---	---	---			10-20
purple oniongrass	HESS		--				--	2-5
sedge	CAREX		--	--	--	---	2-15	--
slender wheatgrass	AGT1		--	--		---	---	2-5
outcrop bitterbrush	FUTR1	--	15-25	---	--		---	2-5
low sagebrush	ARAB1	10-20	---	10-20	10-20	10-20	---	---
mountain big sagebrush	ARAB1	---	5-15	---	--		--	--
gambelberry	SYDB1		--		---			2-5

Range site number	023XY031NV	023XY051NV	023XY0617NV	023XY0611NV	023XY0612NV	023XY0613NV	023XY066NV
Potential production (lb/acre):							
Favorable years	300	1500	900	900	900	2200	1600
Normal years	700	1300	700	700	700	1700	1400
Unfavorable years	300	900	300	500	500	1100	1400

1171 NEVADA-MITPAC-TRALDI ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or inclusion number -						
		NEVADA	MITPAC	TRALDI	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA	--	---	2-5	---	-		
Idaho fescue	FEID	--	---	---	10-50	10-60	5-20	-
Thurber needlegrass	STIN2	10-25	10-25	10-20	2-8	2-8	5-10	10-20
Basin wildrye	ELCT2			5-10		5-10	5-10	2-10
bluebunch wheatgrass	AGSB	20-50	20-50	10-40	15-30	25-40	25-35	40-60
bluegrass	POA++	5-10	5-10		2-8	2-5		
Wyoming big sagebrush	ARTW	---	--	--		---	---	10-20
antelope bitterbrush	PUTB2			2-10	---	2-10	10-25	2-5
big sagebrush	ARTB2	--	---	15-25	---	---	-	10-25
low sagebrush	ARAB4	10-20	10-20		10-20			
mountain big sagebrush	ARVA2	---	---	--		10-20	5-15	10-20
Range site number		023XY031NV	021XY011NV	021XY020NV	023XY017NV	023XY007NV	021XY015NV	023XY039NV
Potential production (lb/acre):								
Favorable years		900	900	1100	900	1600	1800	900
Normal years		700	700	900	700	1200	1200	700
Unfavorable years		500	500	600	500	900	900	500

1174--NEVADA-UTAH/1 ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

		Percentage composition and production (dry weight) of plants on major soils and inclusions				
Common plant name	Plant symbol	Soil name or inclusion number				
		NEVADA	UTAH/1	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	--	2-5	-	2-5	
Idaho fescue	FEID			-		30-40
Thurber needlegrass	ITTE2	10-25	15-20	10-20	15-20	2-5
Basis wildrye	ELCT2		5-10	2-10	5-10	5-10
Bluebunch wheatgrass	AGSF	10-50	10-40	40-60	10-40	25-40
Bluegrass	POA++	5-10				2-5
Wyoming big sagebrush	ARTW			10-20	--	
Antelope bitterbrush	POWR2	--	2-10	2-5	2-10	2-10
Big sagebrush	ART2	-	15-25	15-25	15-25	--
Low sagebrush	ARAR8	10-20	--		--	--
Mountain big sagebrush	ARVA2	-		10-20	--	10-20
Range site number		021XY031NV	021XY020NV	021XY033NV	021XY020NV	021XY007NV
Potential production lb/acre:						
Favorable years		900	1100	900	1100	1600
Normal years		700	900	700	900	1200
Unfavorable years		500	600	500	600	900

114--PERVET-TURNISON ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight) of plants on major soils and inclusions				
Common plant name	Plant symbol	Soil name or inclusion number--				
		PERVET	TURNISON	Inclusion 1	Inclusion 2	Inclusion 3
Nevada bluegrass	POMH1	--	---	---	---	15-35
Sandberg bluegrass	PORE	---	5-10	30-45	---	---
Thurber needlegrass	STTE1	30-40	---	---	10-25	---
Wahbar needlegrass	STTE2	5-10	---	2-5	---	---
bluestem wheatgrass	ACSP	2-5	---	---	20-50	---
bluegrass	POA++	5-10	---	---	5-10	---
bottlebrush squirreltail	JRWY	---	10-20	---	---	---
creeping wildrye	ELTE1	--	---	---	---	5-10
mat subsp	MURI	---	---	---	---	5-10
erigeron	ELIO1	---	1-5	---	---	---
lupine	LUPIN	---	1-3	---	---	---
Douglas rabbitbrush	CRV11	3-5	---	---	---	---
low sagebrush	ARAB1	20-30	2-10	30-45	10-20	---
rubber rabbitbrush	CHRA1	---	10-30	---	---	2-5
silver sagebrush	ARCAL1	---	---	---	---	10-40
Range site number		Q23XT03PV	Q23XT06LV	Q23XT021MV	Q23XT031MV	Q23XT042MV
Potential production (lb/acre):						
Favorable years		600	350	300	900	1800
Normal years		450	225	200	700	1400
Unfavorable years		300	150	150	500	700

1180- WINDMILL-KARLO ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants on major soils and inclusions)				
		Soil name or inclusion number				
		WINDMILL	KARLO	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	30-50		10-50	5-20	10-20
Sandberg bluegrass	POSE		5-10			
Thurber seedgrass	PTHE	2-8		2-8	5-10	
Basin wildrye	ELCI				5-10	
bluethrush wheatgrass	AGSP	15-20		10-10	25-35	5-15
bluegrass	POA++	2-8		2-8		2-5
bottlebrush squirreltail	SENY		10-20			
mountain brome	BRMS					2-8
seedgrass	PTPA					5-15
erigonum	ERIG		1-5			
lupine	LUPIN		1-5			
antelope bitterbrush	BUTR				15-25	
curleaf mountainmahogany	CHMA					25-40
low sagebrush	ARAR	10-20	2-10	10-20		
mountain big sagebrush	ARVA				5-15	5-10
rubber rabbitbrush	CHRA		30-50			
gamberry	STGE					2-5
Range site number		013XY013WV	013XY001WV	013XY017WV	013XY015WV	013XY026WV
Potential production (lb/acre)						
Favorable years		100	350	300	1500	1400
Normal years		700	228	700	1200	1100
Unfavorable years		100	150	500	900	600

1181 - WINDMILL - MADELINE - TIMPAN ASSOCIATION

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community

Percentage composition and production (dry weight) of plants on major soils and inclusions						
Common plant name	Plant symbol	Soil name or inclusion number--				
		WINDMILL	MADELINE	TIMPAN	Inclusion 1	Inclusion 2 Inclusion 3
Conby bluegrass	POCA	---				X
Cusick bluegrass	POCU	---				X
Idaho fescue	FEID	10-50	5-20	30-50		X
Neveda bluegrass	PONE				10-20	---
Randberg bluegrass	PORE	---	---		5-10	---
Trunker needlegrass	STTR	2-8	5-10	2-8	---	X
basin wildrye	WLCB	-	5-10			---
bluebench wheatgrass	WGSP	15-30	25-35	15-30		X
bluegrass	PORE	2-8		2-8		
bottlebrush squarreltail	STNS	---	---		10-20	
mountain brome	BRCA		-		---	10-20
needlegrass	STNA					10-20
purple oniongrass	WGSP					2-5
slender wheatgrass	WGSP	---	---	---	---	2-8
western needlegrass	STOC	---			---	---
erigeron	ERIG	-	-		1-5	
low sagebrush	ARAB	10-30	---	10-30	2-10	-
lupine	LUPIN				1-3	---
antelope bitterbrush	BTBR	---	15-25	-	---	2-5
low sagebrush	ARAB	10-20		10-20	2-10	---
mountain big sagebrush	ARVA	-	5-15	---	-	---
rubber rabbitbrush	CHRA				30-50	-
snowberry	STNS				---	2-8
Range site number		021XY017MV	021XY018MV	021XY019MV	021XY001MV	021XY065MV
Potential production (lb/acre)						
Favorable years		900	1500	900	350	1600
Normal years		700	1200	700	225	1200
Unfavorable years		500	900	500	150	1400

1.82--MINNERLY-WESTBUTTLE COMPLEX 2 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or inclusion number--			
		MINNERLY	WESTBUTTLE	Inclusion 1	Inclusion 2
Canby bluegrass	POCA		-		2.5
Idaho fescue	FEID	10-50	10-40		2-4.5
Thurber needlegrass	STTB2	2.5	2.5	40-25	51-50
Basin wildrye	ELC12		5-10	" "	"
bluebunch wheatgrass	AGSP	45-30	35-40	20-50	15-25
bluegrass	POA++	2.5	2.5	5-10	"
antelope bitterbrush	BUTB2	"	1-10	" "	2-5
big sagebrush	ARTE2	" "			10-20
low sagebrush	ARAL	10-20	"	10-20	" "
mountain big sagebrush	ARVA2	" "	10-20	" "	"
Range site number		023XY017MV	021XY007MV	021XY031MV	023XY096MV
Potential production (lb/acre)					
Favorable years		900	1600	900	1100
Normal years		700	1200	700	900
Unfavorable years		500	900	500	600

1181--MINNESOTA-WESTBOTTIE ASSOCIATION, 10 TO 50 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants on major soils and inclusions)				
		Soil name or Inclusion number				
		MINNESOTA	WESTBOTTIE	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FUID	10-50	30-40	40-60	40-50	--
Thurber needlegrass	STYM2	2-5	2-5	---		10-20
basis vildrya	BLCY2	---	5-10	--	--	--
bluishgreen wheatgrass	AGSF	10-10	20-40	2-10		20-30
bluegrass	POA++	2-5	2-5	5-10	2-5	5-10
needlegrass	STIPA		--	---	5-15	
antelope bitterbrush	PUTR2	--	2-10	---	---	---
low sagebrush	ARARS	10-20	---	10-20		10-20
mountain big sagebrush	ARVA2		10-20		10-20	---
Range site number		021XV017WV	021XV007WV	021XV079WV	021XV094WV	021XV011WV
Potential production (lb/acre):						
Favorable years		900	1600	1200	1300	900
Normal years		700	1200	900	1000	700
Unfavorable years		500	900	600	700	500

1184--WINDMILL-TIFFIN ASSOCIATION

as I indicates that the named plant is in the potential native woodland understory and the percentage is highly variable
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number				
		WINDMILL	TIFFIN	Inclusion 1	Inclusion 2	Inclusion 3
Early bluegrass	BOCA	---	-			X
Early bluegrass	POCU		--	---	---	X
Idaho fescue	FEID	10-20	10-20		40-50	X
Thurber seedling	STTH	2-4	2-4	10-25		X
Bluebunch wheatgrass	ANDP	10-20	15-30	20-50	2-5	X
Binagrass	POA++	2-4	2-4	5-10	5-15	--
Onespike matgrass	DACH	---	--		1-3	---
Western needlegrass	STOC		---	--		X
Arrowleaf balsamorhiza	QASA		---		2-5	-
Low sagebrush	ARAB	10-20	10-20	10-20	10-20	X
Range site number		021XY017MV	021XY017MV	021XY031MV	021XY014MV	021XY035MV
Potential production (lb/acre)		900	900	900	800	600
Favorable years		700	700	700	600	400
Normal years		800	800	800	400	200
Unfavorable years						

1185 WISEMILE-HEART CAMP ASSOCIATION

Abundance of an entry indicates that the named plant is not a key species in the potential native plant community

Percentage composition and production (dry weight) of plants on major soils and inclusions							
Common plant name	Plant symbol	Soil name or inclusion number					
		WISEMILE	HEART CAMP	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cusack bluegrass	POCB3				-		5-15
Idaho fescue	FEID	10-50	5-20	---	15-25	10-40	50-60
Thunder needlegress	FTTB2	2-8	5-10	10-25	---	2-8	
basin wildrye	ELCK12		5-10	-	-	5-10	2-5
bluebunch cheatgrass	AGSP	15-30	25-35	10-50	---	25-40	5-15
bluegrass	POA++	2-8		5-10	5-15	2-5	
goldenweed	KAPLO2	--			2-5	--	
Doegies rabbitbrush	CEV19	--	-	---	2-5	--	
antelope bitterbrush	POTR2		15-25			2-10	---
low sagebrush	AMAB8	10-20		10-20	15-45	---	
mountain big sagebrush	AMVA2		5-15		-	10-20	5-15
snowberry	STNPK	---		---		---	2-5
Rappe site number		021XY017NV	021XY015NV	021XY031NV	021XY008NV	021XY007NV	021XY054NV
Potential production (lb/acre):							
Favorable years		900	1500	900	400	1400	1900
Normal years		700	1200	700	280	1200	1200
Unfavorable years		500	900	500	200	900	900

1186 -MIDWINTER-TIMPAH-CROCAN ASSOCIATION

As 1 indicates that the named plant is in the potential native woodland understory and the percentage is highly variable
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or inclusion number					
		MIDWINTER	TIMPAH	CROCAN	Inclusion 1	Inclusion 2	Inclusion 3
Coolby bluegrass	POCA			X			
Crested bluegrass	POCUL		---	X	---	---	---
Idaho fescue	FEID	30-50	10-50	X			40-50
Sandberg bluegrass	POSB		"	---	---	5-10	"
Thurber needlegrass	STTH	2-8	2-8	X	10-25		
basin wildrye	KLCE			---	---	---	5-10
bluethrush wheatgrass	AGSP	15-30	15-30	X	20-50	"	2-5
bluegrass	POCA	2-5	2-8		5-10		5-10
bottlebrush squerreltail	STBY	"				10-20	
meadow oatgrass	DASH	"	---		"		1-3
western needlegrass	STOC			X		---	
arrowsleaf baselroot	ARBA						2-5
erigonum	ERIG					1-5	
low sagebrush	ARBA	10-20	10-20	X	10-20	2-10	10-20
lupine	LUPIN	"			"	1-3	"
antelope bitterbrush	FOBH		"	"	---	---	15-25
low sagebrush	ARBA	10-20	10-20	X	10-20	2-10	10-20
montain big sagebrush	BEVA			"	"	"	
rubber rabbitbrush	CHBA					10-50	
Range site number		023XY017MV	023XY017MV	023XY098MV	023XY031MV	023XY091MV	023XY014MV
Potential production (lb./acre)							
Favorable years		900	900	400	900	380	1500
Normal years		700	700	400	700	225	1200
Unfavorable years		500	500	200	500	180	900

1187 WINEMILLE-TINTAN-HART CHMP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production dry weight of plants on major soils and inclusions					
		Soil name or inclusion number					
		WINEMILLE	TINTAN	HART CHMP	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	10-50	10-50	5-20	15-25	---	40-80
Thurber needlegrass	STTB2	2-8	2-8	5-10	---	10-25	-
basin wildrye	ELC12	-	-	5-10	---	---	-
bluebunch wheatgrass	AGSF	15-30	15-30	15-35	---	20-50	---
bluegrass	PGR++	2-8	2-8	-	5-15	5-10	2-8
needlegrass	STPA	---	-	-	---	-	5-15
goldenweed	BAPLO2	-	---	---	2-5	---	-
Douglas rabbitbrush	CHV14	-	---	-	2-5	---	-
antelope bitterbrush	POTE2	-	-	15-25	-	---	---
low sagebrush	ARAR6	10-20	10-20	-	15-45	10-30	---
mountain big sagebrush	ARVR2	---	-	5-15	---	---	10-20
Range site number		023XY017WV	023XY017WV	023XY015WV	023XY008WV	023XY011WV	023XY094WV
Potential production lb/acre:							
Favorable years		900	900	1500	400	900	1300
Normal years		700	700	1200	250	700	1000
Unfavorable years		500	500	900	200	500	700

1166 MIDGILL-BEWLAKE-EART CAMP ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or inclusion number--						
		MIDGILL	BEWLAKE	EART CAMP	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Idaho fescue	FEID	10-50	10-20	5-10	---	10-50	---	---
Nevada bluegrass	POHE1	2-5	2-5	---	---	---	---	---
Thurber needlegrass	STTB2	2-5	---	5-10	5-10	2-5	10-25	5-15
basin wildrye	KLGL2	---	---	5-10	2-10	---	---	10-40
bluestem wheatgrass	AGSP	15-30	---	25-35	60-70	15-30	10-50	---
bluegrass	POA++	2-5	---	---	---	2-5	5-10	10-40
mountain brome	BECR1	---	10-20	---	---	---	---	---
needlegrass	STIPA	---	10-20	---	---	---	---	---
purple oniongrass	NEUP	---	2-5	---	---	---	---	---
slender wheatgrass	AGTA	---	2-5	---	---	---	---	---
lupine	LUPIN	---	---	---	---	---	---	2-5
antelope bitterbrush	PUTR2	---	2-5	15-25	2-5	---	---	---
big sagebrush	ARTR2	---	---	---	---	---	---	15-25
low sagebrush	ARAL2	10-20	---	---	---	10-20	10-20	---
mountain big sagebrush	ARVA2	---	---	5-25	10-20	---	---	---
snowberry	SYMPH	---	2-5	---	---	---	---	---
Range site number		022XT017MV	022XT048MV	022XT018MV	022XT016MV	022XT017MV	022XT013MV	022XT003MV
Potential production (lb/acre)		900	2600	1500	1500	900	900	1100
Favorable years		700	1600	1200	1100	700	700	800
Normal years		500	1400	900	800	500	500	600
Unfavorable years								

1119--WINDMILL-HADJERAM-CHOCAN ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

		Percentage composition and production (dry weight of plants on major soils and inclusions)					
Common plant name	Plant symbol	Soil name or inclusion number--					
		MINERHILE	HADJERAM	CHOCAN	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA			X			
Cusick bluegrass	POCU3		---	X	---	---	---
Idaho fescue	FEID	10-30	10-20	X	5-20	10-20	40-50
Nevada bluegrass	POWE3		---		---	5-5	X
Thurber needlegrass	STIE2	2-8	---	X	5-10		
basin wildrye	ELC12	---			5-10		---
big squarlettail	SINU						X
bluebunch wheatgrass	AGSP	15-30	5-15	X	15-35	---	2-5
bluegrass	POA++	2-8	2-5	---	---		2-15
maize	HELI10		---	---	---		X
mountain brome	BRCA5		2-8			10-20	X
needlegrass	STIPA	---	5-15		---	10-20	---
one-spoke oatgrass	DAUF		---				1-2
purple ruminantgrass	HELV	---	---	---	---	2-5	---
slender wheatgrass	AGTR		---			2-8	3
western needlegrass	STOC3	---		X	---	---	---
arrowleaf balsamorhiza	BARA3		---	---	---		2-8
low sagebrush	ARAB1	10-20	---	X	---		10-20
sagebrush	TRAL12						X
montane bitterbrush	POTR2	---			15-25	2-5	---
curlleaf mountainmahogany	CHLE3	---	25-40	---	---	---	---
low sagebrush	ARAB1	10-20	---	X	---		10-20
mountain big sagebrush	ARVA2		5-10	---	5-15	---	X
strawberry	STMPR		1-5			1-8	X
quaking aspen	POTR4	---			---	---	X
Range site number		021XY017MV	023XY034MV	021XY095MV	001XY014MV	021XY065MV	021XY038MV
Potential production (lb/acre)							
Favorable years		900	1400	400	1800	2400	600
Normal years		700	1100	400	1300	1800	600
Unfavorable years		500	800	200	800	1400	400

1190 FEVER-NITRAC ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of
plants on major soils and inclussions

Common plant name	Plant symbol	Soil name or inclusion number				
		FEVER	NITRAC	Inclusion 1	Inclusion 2	Inclusion 3 Inclusion 4
Nevada bluegrass	POWE1		-			15-15
Sandberg bluegrass	POSB			5-10		
Thurber needlegrass	STTB2	10-40	10-25		10-25	---
Weber needlegrass	STWE	5-15				
bluabunch wheatgrass	ACSP	2-8	20-50		20-50	---
bluegrass	POA++	5-10	5-10		5-10	
bottlebrush squarreltail	STBY			10-20		
creeping wildrye	KLTY1					5-15
mat mahly	MORI					5-10
dock	ROMEX					---
erigeron	ERIGQ			1-5		
eveningprimrose	CHNOT					---
lupine	LUPIN			1-3		2-5
povertyweed	LYAL					---
Douglas rabbitbrush	CHVIB	2-5				5-10
lme sagebrush	ARJES	20-30	10-20	2-10	10-20	
rubber rabbitbrush	CHRAZ			10-50		2-5
silver sagebrush	ARCAL3					10-40
Range site number		011XY051WV	023XY031WV	011XY001WV	023XY031WV	011XY001WV 023XY031WV
Potential production (lb/acre):						
Favorable years		600	900	350	900	1800
Normal years		450	700	225	700	1400
Unfavorable years		100	200	150	500	700

1195--BITTER-ASHCAMP ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants on major soils and inclusions)				
		Soil name or Inclusion number--				
		BITTER	ASHCAMP	Inclusion 1	Inclusion 2	Inclusion 3
Conky bluegrass	POCA	2-5	2-5	---	---	2-5
Cusack bluegrass	POCU3	---	---	---	2-8	---
Idaho fescue	FEID	2-18	---	---	40-80	---
Thurber needlegrass	STTR2	38-60	15-20	10-20	8-18	15-20
basin wildrye	KLIC12	---	5-10	2-10	---	5-10
bluebunch wheatgrass	ROSB	15-25	10-40	40-60	2-8	30-40
Wyoming big sagebrush	ARTW	---	---	10-20	15-25	---
antelope bitterbrush	POTR2	2-5	2-10	2-5	---	2-10
big sagebrush	SAVR2	10-20	15-25	15-25	---	15-38
Mountain big sagebrush	AKV2	---	---	10-20	---	---
<hr/>						
Range site number		023XV094MV	023XV020MV	023XV039MV	023XV072MV	023XV010MV
Potential production (lb/acre):						
Favorable years		1200	1100	900	800	1200
Normal years		800	800	700	800	900
Unfavorable years		600	600	500	350	600

1205--DAVEY LOAMY FINE SAND 1 TO 15 PERCENT SLOPES

(absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclinations			
		Soil name or Inclination number			
		DAVEY	Inclination 1	Inclination 2	Inclination 3
Indian ricegrass	GRYI	15-25	--	10-40	5-15
Sandberg bluegrass	POSE		--		2-5
Thurber needlegrass	STNE		5-15		20-40
Nehalem needlegrass	STNE				2-5
basin wildrye	ELCII	2-8	10-40	2-5	
bluegrass	POSE	--	10-40	--	--
bottlebrush squirreltail	STNE			--	2-5
needleandthread	STCO	20-40		5-15	
thickspike wheatgrass	ADDA	1-5		2-8	--
lupine	LUPIN	--	2-5	--	--
Wyoming big sagebrush	ARTW	--	--	--	20-30
basin big sagebrush	ARTW		--	10-25	
big sagebrush	ARTW	10-20	15-25		--
fourwing saltbush	ATCA	--	--	2-8	
spiny hopsgum	GRYI	2-5	--	5-10	2-5
Range site number		023IT051RV	023Y002RV	023Y011RV	023Y004RV
Potential production (lb/acre)					
Favorable years		900	1100	800	800
Normal years		700	800	600	600
Unfavorable years		500	600	400	400

1266 -DAVEY-CORRAL ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number					
		DAVEY	CORRAL	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	ORRY	15-25	15-25	15-25	30-40	5-15	---
San Diego bluegrass	POSE	---	---	---	---	2-8	---
Yorba seedgrass	STHE	---	---	---	---	20-40	5-15
Webber seedgrass	STWE	---	---	---	---	2-8	---
basin wildrye	ELCT2	2-8	2-8	2-8	2-5	---	10-40
bluegrass	POA++	---	---	---	---	---	10-40
bottlebrush squirreltail	STBY	---	---	---	---	2-5	---
needleandthread	STCO4	20-40	20-40	20-40	5-15	---	---
chickpea wheatgrass	AGDA	2-5	2-5	2-5	2-8	---	---
lupine	LUPIN	---	---	---	---	---	2-5
Wycasing big sagebrush	ARTRW	---	---	---	---	20-30	---
basin big sagebrush	ARTRT	---	---	---	10-25	---	---
big sagebrush	ARTRJ	10-20	10-20	10-20	---	---	15-25
fourwing saltbush	ATCAL	---	---	---	2-8	---	---
spiny hopsgage	GRSP	2-5	2-5	2-5	5-20	2-5	---
Range site number		023X051W	023X051W	023X051W	023X051W	023X051W	023X051W
Potential production (lb/acre)							
Favorable years		900	900	900	800	800	1100
Normal years		700	700	700	600	600	900
Unfavorable years		500	500	500	300	400	600

1210 HAZUNA-BIGWAT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or inclusion number-			
		HAZUNA	BIGWAT	Inclusion 1	Inclusion 2
Indian ricegrass	GRMY	10-20	5-15	---	---
bottlebrush squarreltail	SEMY	5-10	5-10	5-10	5-10
black greasewood	RAYR4			15-30	15-30
red sagebrush	ARSP5	5-15	20-30	2-8	2-8
sheepweed	SHAWO			2-8	2-8
chadsage	ATCO	40-50	30-40	30-50	30-50
spiny hopsage	GRSF	5-15	2-5	--	---
winterfat	WULAS	2-5	2-5		
Range site number		024XY045MV	024XY002MV	024XY001MV	024XY003MV
Potential production (lb/acre):					
Favorable years		900	750	600	600
Normal years		700	450	450	450
Unfavorable years		500	300	300	300

1215--SAGEHAWK ISLAND ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight) of plants on major soils and inclusions				
Common plant name	Plant symbol	Soil name or inclusion number--				
		SAGEHAWK	ISLAND	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	CHRY	-	25-35	-	5-15	-
Sandbarry bluegrass	POSE	-	-	-	1-5	-
Thurber seedling	STYR2	-	-	-	15-25	-
basin wildrye	ELCH2	-	2-5	-	-	55-65
bottlebrush squawroot	STYR	5-10	-	2-10	2-5	-
creeping wildrye	ELTR1	-	-	-	-	5-15
seedling thread	STYR4	-	5-10	-	-	-
western wheatgrass	LOSH	-	-	-	-	5-15
globeam	SPHAE	-	-	-	1-2	-
Wyoming big sagebrush	ASTRM	-	-	-	15-25	-
basin big sagebrush	ASTRT	-	-	-	-	10-15
black greasewood	SAVW	15-30	15-45	-	-	2-5
bad sagebrush	ALSHS	2-5	-	-	-	-
seepweed	STYR5	2-5	-	-	-	-
shepherdia	STYR	10-50	-	75-85	-	-
spiny hopeweed	STYR	-	5-15	-	5-20	-
Range site number		024IT003PV	024IT006PV	024IT006PV	024IT006PV	024IT006PV
Potential production (lb./acre):						
Favorable years		600	600	100	700	1500
Normal years		450	450	200	450	1100
Unfavorable years		300	150	75	300	500

1228--SCHEMP VERY STONY LOAM, 4 TO 15 PERCENT SLOPE

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclussions				
		Soil name or inclusion number				
		SCHEMP	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	GRYI	5-15	5-15	5-15		---
Nevada bluegrass	POHE	-	-	---	2-8	2-10
Sandberg bluegrass	POSE	2-5	2-5	2-8	--	-
Thorber needlegrass	STTR	20-40	20-40	15-25	---	--
Webber needlegrass	STWE	2-8	2-8			
basin wildrye	ELCI	--		---	65-75	10-60
hottelbrush squarreltail	SIEY	2-5	2-5	2-5	--	---
western wheatgrass	AGEM	---				2-10
globe-mallow	SPHE		--	1-3	--	---
povertyweed	IVAR					2-5
thalypody	TRLY	--	--		--	1-3
Wyoming big sagebrush	ARTR	20-30	20-30	20-35		
basin big sagebrush	ARTR				5-10	5-15
rubber rabbitbrush	CHRA				1-3	
spiny hopsage	GRSP	2-5	2-5	5-20		-
Range site number		023XY006NV	023XY006NV	024XY020NV	023XY009NV	023XY005NV
Potential production (lb/acre)						
Favorable years		800	800	700	5500	1000
Normal years		600	600	450	4500	1000
Unfavorable years		400	400	300	2500	1100

1221 -3CHAMP VERY STONY LOAM, 10 TO 50 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or inclusion number--			
		CHAMP	Inclusion 1	Inclusion 2	Inclusion 3
Cebby bluegrass	POCA		2 5		---
Indian ricegrass	ORRY	5 15	--	---	5 15
Nevada bluegrass	POHE			2 10	--
Sandberg bluegrass	POKE	2 5	--	---	2 8
Thurber needlegrass	ETHE	30-40	15-20	--	15 25
Webber needlegrass	STWE	2 8		--	---
basin wildrye	ELCK	--	5-10	40-60	
bluethump wheatgrass	AMSP	--	30-40		--
bottlebrush squirreltail	SIST	2 5	---	---	2 5
western wheatgrass	AGSM		--	2 10	
globemallow	SPRA	--	--	--	1-2
povertyweed	IVAE	--	--	1 5	--
thelypody	TEEL	--	--	1-1	--
Wyoming big sagebrush	AKTR	20 30	---		20 35
antelope bitterbrush	PUTL	---	2 10	---	
basin big sagebrush	AKTR	---	---	5-15	--
big sagebrush	AKTR		15-25	--	
spiny hopsage	GRFP	3 5	--		5 20
Range site number		01JXT000W	02KXT000W	03LXT000W	04LXT000W
Potential production (lb/acre):					
Favorable years		800	1100	1000	700
Normal years		600	900	2000	400
Unfavorable years		400	600	1300	300

1223 SCHAMP LOAM 4 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of
plants on major soils and inclussions

Common plant name	Plant symbol	Soil name or inclusion number -			
		SCHAMP	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	GRNY	5-15	5-15	5-15	15-25
Sandberg bluegrass	POBL	2-5	2-5	2-5	
Thurber needlegrass	STNE2	20-40	20-40	20-40	---
Nabber needlegrass	STNE	2-8	2-8	2-8	---
basin wildrye	SLC12	--	--		2-8
Bottlebrush squirreltail	SIFY	2-5	2-5	2-5	
needleandthread	STCO4				20-40
thickspike wheatgrass	AGDA	--	--	---	2-5
Wyoming big sagebrush	ARTEN	20-30	20-30	20-30	--
big sagebrush	ARTR2				10-20
spiny hopsage	GRSV	2-5	2-5	2-5	2-5
Range site number		023XT006MV	023XT006MV	023XT006MV	023XT006MV
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	700
Unfavorable years		400	400	400	500

1110- BADLAN-HAZUNA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or inclusion number--					
		BADLAN	HAZUNA	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	ORRY	---	10-20	---	25-30	5-15	---
Common alkaligrass	PULH	---	---	---	---	---	20-30
Nevada bluegrass	POME3	---	---	---	---	---	40-50
Sandberg bluegrass	POSE	---	---	---	---	2-8	---
Thunder needlegrass	PTTH2	---	---	---	---	15-25	---
basin wildrye	ELCI2	---	---	55-65	2-5	---	2-4
bottlebrush squarretail	SIRY	5-10	5-10	---	---	2-5	---
creeping wildrye	ELTR1	---	---	5-15	---	---	---
inland saltgrass	DISP22	---	---	---	---	---	5-20
needleandthread	STCO4	---	---	---	5-10	---	---
western wheatgrass	AGSN	---	---	5-15	---	---	---
globemallow	SPHAK	---	---	---	---	1-2	---
other perennial forbs	PEFY	---	---	---	---	---	30-70
Wyoming big sagebrush	ARTW4	---	---	---	---	20-35	---
basin big sagebrush	ARTW1	---	---	10-15	---	---	---
black greasewood	SAYE4	15-20	---	2-4	35-45	---	---
bud sagebrush	AFSP5	2-8	5-15	---	---	---	0-5
other shrubs	SSSS	---	---	---	---	---	---
sagebrush	SOALD	2-8	---	---	---	---	---
shadscale	ATCO	10-50	40-50	---	---	---	---
spiny hopsage	GRSP	---	5-15	---	5-15	5-20	---
winterfat	EULA5	---	2-5	---	---	---	---
Range site number		034XY003MV	024XY065MV	024XY006MV	024XY066MV	024XY020MV	021XY002MV
Potential production lb./acre;							
Favorable years		600	300	1300	600	700	1300
Normal years		450	700	1000	400	450	1000
Unfavorable years		300	500	600	250	300	700

1215 CHENE GRAVELLY LOAM, 4 TO 15 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants on major soils and inclusions)			
		Soil name or inclusion number--			
		CHENE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	GRYI	5-25	5-15	2-5	---
Nevada bluegrass	POW3	---	---	---	2-10
Sandberg bluegrass	POSK	2-8	2-5	---	---
Thurber needlegrass	STIM2	15-25	10-40	---	---
Haber needlegrass	STNE	---	2-8	---	---
basin wildrye	ELC13	---	---	---	40-60
bottlebrush squirreltail	SIMY	2-5	2-5	2-10	---
desert needlegrass	STSF3	---	---	2-10	---
western wheatgrass	WDSH	---	---	---	2-10
globemallow	SPHAE	1-2	---	---	---
povertyweed	IVAX	---	---	---	2-5
theiopyrum	THELY	---	---	---	1-3
Wyoming big sagebrush	ANTRW	10-15	20-30	---	---
basin big sagebrush	ARTAT	---	---	---	1-15
hoof sagebrush	ANSP5	---	---	15-30	---
shadscale	ATCO	---	---	10-30	---
spiny hopsage	CHSP	2-20	2-5	---	---
Range site number		024XY020WV	023XY004WV	024XY025WV	023XY005WV
Potential production (lb/acre):					
Favorable years		700	300	250	3000
Normal years		450	400	150	2000
Unfavorable years		300	400	75	1300

1240. TONET-MILLERLUX-HART CAMP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil group or inclusion number				
		TONET	MILLERLUX	HART CAMP	Inclusion 1	Inclusion 2
					Inclusion 3	
Idaho fescue	FSID	30-50		5-20	30-50	---
Nevada bluegrass	POHE3		---		---	10-20
Sandberg bluegrass	POSE		30-45	--	---	2-5
Thurber needlegrass	STWB2	2-5	--	5-10	2-5	---
Hobbs needlegrass	STWB		2-5	--	---	--
basin wildrye	ELC12		--	5-10	---	---
bluebunch wheatgrass	AGSP	15-30	--	25-35	15-30	
bluegrass	POA++	2-5			2-5	--
bottlebrush squirreltail	STYX		--	---		10-20
mountain brome	BRCA1	---				--
needlegrass	STWA		---	---		10-20
Purple oniongrass	HEXP	---		--		2-5
slender wheatgrass	AGTA		---	--		2-5
erigonum	ERT00	--		--		1-5
lupine	LUP10					1-5
catclaw bitterbrush	PUTB2		--	15-25		2-5
low segetrub	ABAR2	10-20	30-45		10-20	2-10
mountain big segetrub	ABAR2		--	5-15		
rubber rabbitbrush	CHRA2		---			10-50
snowberry	SYNPB				---	--
						2-5
Range site number		023XY017WV	023XY021WV	023XY015WV	023XY017WV	023XY001WV
Potential production (lb/acre)						023XY065WV
Favorable years		900	300	1500	900	350
Normal years		700	200	1200	700	225
Unfavorable years		500	150	900	500	150

1245 - SARAPH-UNALDI-PRONTERA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or Inclusion number						
		SARAPH	UNALDI	PRONTERA	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA		2-5	-			2-5	---
Coastal bluegrass	POCU3			2-5	---			---
Idaho fescue	FEID		-	40-60		-	--	---
Indian ricegrass	ORRY	5-15		---	---	5-15		---
Sandberg bluegrass	POSE	2-5	-			2-5	---	---
Thunder needlegrass	STNE2	20-40	15-20	5-15	5-15	20-40	15-20	10-40
Webber needlegrass	STNE	2-5		-		2-5	-	5-15
basin wildrye	ELCI2	-	5-10	-	30-40	--	5-10	
bluebunch wheatgrass	AGSP	-	30-40	2-5			30-40	2-5
bluegrass	POA++		---	-	10-40	--	---	5-10
bottlebrush squirreltail	SIBY	2-5		-	-	2-5		-
lupine	LUPIN		---	-	2-5	---	---	-
Douglas rabbitbrush	CEV13	--		-	-	-		2-5
Wyoming big sagebrush	ARTEW	20-30	-	15-25	-	20-30	-	-
antelope bitterbrush	POIR2	--	2-10		-		2-10	
big sagebrush	ARTE2	-	15-25		15-25	--	15-25	
low sagebrush	ALARS	-			-			20-30
spiny hopsage	GRSP	2-5	-		-	2-5	--	
Range site number		023XT006MV	023XT020MV	023XT072MV	023XT082MV	023XT006MV	023XT020MV	023XT059MV
Potential production (lb/acre)								
Favorable years		800	1100	800	1100	800	1100	600
Normal years		600	900	800	800	600	900	450
Unfavorable years		400	600	350	600	400	600	300

1210. ABEONE-ABEDOS-BEARBUTTE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight) of plants on major soils and inclusions					
Common plant name	Plant symbol	Soil name or inclusion number -					
		ABEONE	ABEDOS	BEARBUTTE	Inclusion 1	Inclusion 2	
Idaho fescue	FEID	2-5	40-50	40-50	-	---	--
Nevada bluegrass	POKE1	-	---	--	-	40-50	--
Sandberg bluegrass	POKE	-	---	--	30-45	--	--
Thurber needlegrass	STNE2	10-40	---	--	-	---	-
Wahner needlegrass	STNE	---	--	--	2-5	---	-
bluebunch wheatgrass	AGDP	20-40	2-10	1-5	-	---	---
bluegrass	POA++	5-10	5-10	-	-	---	---
sedge	CAKE1	---	-	--	-	5-15	---
antelope bitterbrush	WUTE2	2-10	--	10-20	-	-	--
low sagebrush	ARAR	15-25	10-20	-	10-45	-	--
mountain big sagebrush	ARVA2	-	-	10-20	-	---	--
Range site number		023XY078NV	023XY079NV	023XY066NV	023XY021NV	023XY013NV	none
Potential production (lb/acre)							
Favorable years		1300	1200	1300	300	2200	
Normal years		1000	900	1100	200	1700	
Unfavorable years		700	600	900	150	1300	

1251 ASH000-ASH008-ASHT00 ASSOCIATION

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable.
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants on major soils and inclusions)					
		Soil name or inclusion number					
		ASH000	ASH008	ASHT00	Inclusion 1	Inclusion 2	Inclusion 3
					Inclusion 4		
Cashy bluegrass	POCA	---	---	---	X	4-8	
Cusick bluegrass	POCU1	---	---	---	X	-	-
Idaho fescue	FEID	2-5	40-60	40-60	X	-	40-50
Fourber seedling	STFW2	20-40	---	-	X	15-20	10-20
basin wildrye	ELC12	-	-	-	-	5-10	2-5
bluebunch wheatgrass	WOBV	20-40	2-10	---	X	10-40	2-8
bluegrass	POA++	1-10	5-10	2-8	-	-	10-40
needlegrass	ST13A	-	-	5-15	-	-	---
western seedling	STOC2	-	-	-	X	-	-
low sagebrush	ARAR0	15-25	10-20	---	X	-	-
lupine	LUP1H	-	-	-	-	-	2-5
antelope bitterbrush	PUTW2	2-10	-	-	-	2-10	---
basin big sagebrush	ARTAT	-	-	-	-	15-25	---
big sagebrush	ARTH1	---	---	---	---	15-25	15-25
low sagebrush	ARLR0	15-25	10-20	-	X	-	-
mountain big sagebrush	MVAL1	-	-	10-20	-	-	-
Range site number		023XY074MV	023XY079MV	023XY094MV	023XY095MV	023XY098MV	023XY071MV
Potential production (lb. acre)							
Favorable years		1300	1200	1300	600	1100	1100
Normal years		1000	900	1000	400	900	800
Unfavorable years		700	600	700	200	600	600

1253 ASHEDOS-ARSTINE-BACKWOOD ASSOCIATION

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production dry weight of plants on major soils and inclusions						
		Soil name or inclusion number						
		ASHEDOS	ARSTINE	BACKWOOD	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cusick bluegrass	POCUS				5-15			
Idaho fescue	FEID	40-60	40-60	X	10-60	40-50	---	X
Nevada bluegrass	PONE3			X	--		40-50	X
basin wildrye	BLC12				2-5		---	---
big squirreltail	STJ1			X	--		---	---
bluebunch wheatgrass	AGSP	2-10	--		1-15	2-5	---	---
bluegrass	POA++	5-10	2-4		--		---	---
maize	HELIC			X	--		---	---
mountain brome	BROM3			X			---	X
needlegrass	ST12A		5-15		---	---		
rush	JUNC1						---	X
sedge	CARE		--		---	---	1-15	X
slender wheatgrass	AGTN			X			---	---
groundsel	SENEC		--		---	--		X
meadowgrass	TRAL12			X	---	--	---	X
yellow	ACHIL		--		---	--		X
Woods rose	ROSA						---	X
antelope bitterbrush	BUTE2		--			10-20	---	---
low sagebrush	ARAB2	10-20			---		---	
mountain big sagebrush	ARVA2		10-20	X	1-15	10-20		---
snowberry	SYMP	---		X	2-5		--	
quaking aspen	POTET			X			--	X
<hr/>								
Ridge site number		021XY09MV	023XY094MV	021XY020MV	023XY054MV	021XY066MV	023XY011MV	021XY029MV
Potential production (lb./acre):								
Favorable years		1100	1100	600	1500	1100	2100	1500
Normal years		900	1000	400	1300	1100	1700	1100
Unfavorable years		600	700	250	900	900	1300	1000

1211 HENLANDS-WINEMILE COMPLEX 4 TO 13 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential active plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number				
		HENLANDS	WINEMILE	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	30-40	10-50	15-25	10-40	30-40
Thurber needlegrass	STTH2	2-5	1-8	---	2-8	2-8
basin wildrye	ELCII2	5-10			5-10	5-10
bluebunch wheatgrass	ACSP	25-40	15-30	--	25-40	25-40
bluegrass	POA++	2-5	2-8	5-15	2-5	2-5
goldenweed	HAPLO2			2-8		-
Douglas rabbitbrush	CHVIB			2-5		
antelope bitterbrush	POTR2	2-10			2-10	2-10
low sagebrush	ARAB2		10-20	25-45	-	
mountain big sagebrush	ARVA2	10-20			10-20	10-20
Range site number		023XY007MV	023XY017MV	023XY008MV	023XY009MV	023XY007MV
Potential production (lb./acre):						
Favorable years		1600	900	400	1600	1600
Normal years		1200	700	250	1200	1200
Unfavorable years		900	500	200	900	900

1236 MEVLAUDS MEADOW ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclussions				
		Soil name or inclusion number				
		MEVLAUDS	MEVLAUDS	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	10-20	30-40	-	5-20	10-20
Nevada bluegrass	POWEL	2-5	-	-	-	-
Thurber seedling-grass	STUE	-	2-5	5-10	5-10	-
basin wildrye	ELCII	-	5-10	5-10	5-10	-
bluebunch wheatgrass	AGSY	-	25-40	10-20	25-35	5-15
bluegrass	POA+	-	2-5	-	-	2-5
mountain broom	BOCAL	10-20	-	-	-	2-5
needlegrass	STIPA	10-20	-	-	-	5-15
purple oniongrass	HELF	2-5	-	-	-	-
slender wheatgrass	AGT	2-5	-	-	-	-
antelope bitterbrush	PUTR	2-5	2-10	2-5	15-25	-
curlleaf mountainbroom	CHLE	-	-	-	-	25-40
mountain big sagebrush	ARVA	-	10-20	10-20	5-15	5-10
sagebrush	SYMPT	2-5	-	-	-	2-5
Range site number		022X045MV	022X007MV	022X016MV	022X018MV	022X026MV
Potential production (lb/acre):						
Favorable years		2400	1600	1200	1500	1400
Normal years		1800	1200	1100	1200	1100
Unfavorable years		1400	900	800	900	800

1257. HIGHLANDS-SAGEGROVE ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Common plant name	Plant symbol	Percentage composition and production dry weight of plants on major soils and inclusions			
		Soil name or inclusion number--			
		HIGHLANDS	SAGEGROVE	Inclusion 1	Inclusion 2
Idaho fescue	FWID	10-20	10-20	30-40	X
Nevada bluegrass	PONE3	1-5	2-5		X
Tourber needlegrass	STIR3			1-5	--
basin wildrye	BLCT2	---		5-10	
big squirreltail	SLJU				X
bluebunch wheatgrass	AGST	---		25-40	
bluegrass	POR4	--		2-5	---
melic	MELIC		-		X
mountain brome	BRCAS	10-20	10-20	---	X
needlegrass	STIPA	10-20	10-20		---
purple oniongrass	MELP	2-5	2-5	---	
slender wheatgrass	AGTR	1-5	2-5		X
sandcove	TRALI2			---	X
antelope bitterbrush	POTR1	2-5	2-5	2-10	--
mountain big sagebrush	ARVA2	-		10-20	X
snowberry	SYMPE	1-5	2-5		X
quaking aspen	POTRT			---	X
Range site number		013XY065NV	013XY065NV	023XY007NV	023XY028NV
Potential production (lb/acre)					
Favorable years		1600	2600	1600	600
Normal years		1600	1800	1200	400
Unfavorable years		1400	1400	900	200

1254 .MEXLAMING-BADGERCAMP-BACKWOOD ASSOCIATION

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

		Percentage composition and production (dry weight) of plants on major soils and inclusions					
Common plant name	Plant symbol	Soil name or inclusion number					
		MEXLAMING	BADGERCAMP	BACKWOOD	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	PRID	10-20	10-20	X	10-50	10-40	
Nevada bluegrass	POHE1	2-5		X			
Thurber needlegrass	STIN2				2-8	2-8	
basin wildrye	ELCY2					5-10	
big squirreltail	STJU			X			
bluebunch wheatgrass	AGSP		5-15		15-30	25-40	
bluegrass	POA++		2-5		2-8	2-8	
salic	HEHIC			X			
mountain brome	BRCA3	10-20	2-8	X			
needlegrass	STIPA	10-20	5-15				
purple oniongrass	MLSP	2-5					
slender wheatgrass	ACST	2-8		X			
meadow rue	TRAIL1			X			
antelope bitterbrush	PUTK2	2-5				2-10	
curlleaf mountainmahogany	CHER3		25-40				
low sagebrush	ARAB4				10-20		
mountain big sagebrush	ARV12		5-10	X		10-20	
snowberry	SYREN	2-8	2-5	X			
quaking aspen	POKT			X			
Range site number		023KY065NV	023KY026NV	023KY018NV	023KY011NV	023KY007NV	None
Potential production (lb. acre)							
Favorable years		2600	1400	600	900	1600	
Normal years		1800	1100	400	700	1200	
Unfavorable years		1400	600	250	500	900	

4265--FITZWATER WESTBUTTE ASSOCIATION

An X indicates that the named plant is in the potential active woodland understory and the percentage is highly variable.
 Absence of an entry indicates that the named plant is not a key species in the potential active plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or inclusion number					
		FITZWATER	WESTBUTTE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Idaho fescue	FEID	---	30-40		10-20	X	-
Nevada bluegrass	POKE1			--	2-5	X	2-8
Thurber needlegrass	STHE	5-10	2-8	10-20		---	--
beem wildrye	ELC12	2-10	5-10	2-10	---		40-60
big squirreltail	SIJU					X	-
bluebunch wheatgrass	AGSE	60-70	25-40	40-60	---		---
bluegrass	POA++		2-5		---	---	
holc	HELC	-		---	-	X	---
mountain brome	BRCM				10-20	X	---
needlegrass	STIPA	---		---	10-20		---
purple aminegrass	MESE				2-5	---	---
sedge	CAREX	-				---	2-5
glauder wheatgrass	AGTR			--	2-8	X	
wheatgrass	AGROP2	---				-	5-15
meadowrus	TEAL12				--	X	--
Wyoming big sagebrush	ARTM	--		10-20	---		-
antelope bitterbrush	PUTM2	2-8	2-10	2-5	2-5		--
big sagebrush	ARTE2	---		15-25			
mountain big sagebrush	ARVA2	10-20	10-20	10-20		X	5-15
snowberry	SYMPH				2-8	X	
quaking aspen	POPR	-				X	--
Range site number		021XY016MV	021XY007MV	021XY019MV	021XY061MV	021XY078MV	021XY056MV
Potential production lb/acre)							
Favorable years		1500	1600	900	2600	600	2200
Normal years		1100	1200	700	1800	400	1700
Unfavorable years		800	900	500	1400	250	1200

1170--HARTIG GRAVELLY LOAM 4 TO 30 PERCENT SLOPES

(absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number--				
		HARTIG	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Yucca baccata	YB2D	---	---	10-40	30-50	5-10
Thurber needlegrass	STT02	1-10	1-10	3-8	1-8	5-10
basin wildrye	BLC17	2-10	2-10	1-10	---	5-10
bluebunch wheatgrass	AGSF	50-70	10-70	15-40	18-30	25-35
bluegrass	PQ1++	-	-	2-8	2-8	-
antelope bitterbrush	BYR2	2-8	1-8	2-10	---	1-10
low sagebrush	ALARS	-	-	-	10-20	-
mountain big sagebrush	ARVA2	10-20	10-20	10-20	-	5-15
Range site number		021XY015NV	022XY016NV	021XY007NV	023XY017NV	021XY015NV
Potential production (lb/acre):						
Favorable years		1500	1500	1600	900	1800
Normal years		1300	1300	1300	700	1200
Unfavorable years		800	800	900	500	900

1271--HARTIG-WENLANDS ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Common plant name		Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or Inclusion number--				
		HARTIG	WENLANDS	Inclusion 1	Inclusion 2	Inclusion 3
Columbia needlegrass	STWEL			---		5-15
Cusick bluegrass	POCU3	-	5-15	-	---	
Idaho fescue	FEID	---	50-60	X	10-20	-
Nevada bluegrass	POWE3	-		X	---	
Thurber needlegrass	STWEL	5-10		---		-
beard wildrye	ELCT2	2-10	2-5		---	
big squirreltail	SIJU			X		---
bluebunch wheatgrass	AGSD	60-70	5-15		5-15	-
bluegrass	POWE		---	---	2-5	-
halo	HELIC	-		X	---	---
mountain brome	BRCA5	---	---	X	2-5	5-15
needlegrass	STIPA			---	5-15	
slender wheatgrass	AGTR	---	-	X		5-10
meadow rue	TMAL12			X		
antelope bitterbrush	POTR2	2-5		---		---
curlleaf mountainmahogany	CELE3				25-40	
mountain big sagebrush	AMV22	10-20	5-15	X	5-10	
quaking aspen	POTRT	-		X		45-60
sunberry	STYRK		2-5	X	2-5	2-5
quaking aspen	POTRT	-		X		45-60
Range site number		021XY016MV	021XY036MV	021XY026MV	023XY026MV	023XY027RV
Potential production (lb/acre)						
Favorable years		1500	1500	600	1400	600
Normal years		1000	1200	400	1100	500
Unfavorable years		800	900	250	600	100

1272 HARTIG-ROCK OUTCROP ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number				
		HARTIG	ROCK OUTCROP	Inclusion 1	Inclusion 2	Inclusion 3
Indian fescue	FEID	-	-	-	40-60	-
Indian ricegrass	ORNY	-	-	-	-	5-15
Sandberg bluegrass	POJE	-	-	-	-	2-5
Tanber needlegrass	STNE2	5-10	-	5-10	-	10-20
Webber needlegrass	STNE	-	-	-	-	2-5
Basin wildrye	BLCY1	2-10	-	2-10	-	-
bluebunch wheatgrass	AGSP	60-70	-	60-70	2-10	40-60
bluegrass	POA++	-	-	-	1-10	-
bottlebrush squarreltail	STGY	-	-	-	-	2-5
Wyoming big sagebrush	ARTRN	-	-	-	-	10-20
utah big sagebrush	POTR2	2-5	-	2-5	-	2-5
big sagebrush	ARTR1	-	-	-	-	15-25
low sagebrush	ARAR6	-	-	-	10-10	-
mountain big sagebrush	ARVR2	10-20	-	10-20	-	10-20
spiny hopsage	CHSD	-	-	-	-	2-5
Range site number		021ET016NV	021ET016NV	023ET016NV	021ET016NV	021ET016NV
Potential production (lb/acre):						
Favorable years		1500	1500	1200	900	800
Normal years		1100	1100	900	700	600
Unfavorable years		800	800	600	500	400

1273 EMERG-HARWOOD ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number				
		EMERG	HARWOOD	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEIS		10-20	10-40	10-20	10-20
Nevada bluegrass	PCWE1	---	2-5	---	---	2-5
Thurber needlegrass	STTE2	1-10	-	2-5	---	
Basis wildrye	ELCT2	2-10	-	5-10	---	
bluethumb wheatgrass	AQSF	50-70		25-40	1-15	
bluegrass	POA++		--	2-5	2-5	
mountain brome	BRCA5	-	10-20		2-5	10-20
needlegrass	STIPA		10-20	-	5-15	10-20
purple oniongrass	MRSP		2-5		---	2-5
slender wheatgrass	ACTR	---	2-5	---	-	2-5
astorops bitterbrush	POTE2	2-5	2-5	1-10		2-5
curleaved mountainbegonia	CHLE3	-		-	25-40	-
mountain big sagebrush	ARVA2	10-20	-	10-20	1-10	
sagebrush	SYMP2	--	2-5	---	2-5	2-5
Range site number		023EX016RV	023EX045RV	023EX007RV	023EX024RV	023EX048RV
Potential production (lb/acre)						
Favorable years		1500	2600	1600	1400	2600
Normal years		1100	1800	1200	1100	1800
Unfavorable years		800	1400	900	600	1400

1275- HART CAMP STONY LOAM, 4 TO 30 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or Inclusion number -			
		HART CAMP	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POC1	---	---	---	2 5
Idaho fescue	FEID	5-20	---	5-20	---
Thurber needlegrass	STTH2	5-10	5-10	5-10	15 20
basin wildrye	ELCT2	5-10	2-10	5-10	8-10
bluebunch wheatgrass	AGSP	25-35	60-70	25-35	30 40
antelope bitterbrush	FUTR1	15-25	2 8	15-25	2 10
big sagebrush	AKTR2	--	---	---	15 25
mountain big sagebrush	AKVA2	5-15	10-20	5-15	--
Range site number		021XY015MV	021XY016MV	021XY015MV	021XY020MV
Potential production (lb/acre)					
Favorable years		1500	1600	1500	1100
Normal years		1200	1300	1200	900
Unfavorable years		900	800	800	600

1275--BART CAMP-REYNOLDS-WESTBOUTE ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or inclusion number--					
		BART CAMP	REYNOLDS	WESTBOUTE	Inclusion 1	Inclusion 2	Inclusion 3
Quack bluegrass	POC03			-		5-15	-
Idaho fescue	FEID	5-20		10-40	---	10-10	X
Nevada bluegrass	POHE3		---		--	-	X
Sandberg bluegrass	POSE	-		---			X
Thunder needlegrass	STTH2	5-10	10-20	2-8	5-10		X
Basin wildrye	ELCT2	5-10	3-10	5-10	2-10	2-5	X
blueminch cheatgrass	AGSP	25-35	40-60	25-40	10-20	5-15	X
bluegrass	POH++		---	2-5	---		
Wyoming big sagebrush	ARTRH	--	10-20	-		---	-
antelope bitterbrush	PUTR2	15-25	2-5	2-10	2-8	--	
big sagebrush	ARTR2	---	15-25	---			
mountain big sagebrush	ARVA2	5-15	10-20	10-20	10-20	1-15	X
snowberry	SYNPS				-	2-5	
Range site number		023XY915HV	023XY039HV	023XY007HV	023XY014HV	023XY054HV	023XY074HV
Potential production lb/acre)							
Favorable years		1500	800	1600	1500	1500	700
Normal years		1200	700	1200	1100	1200	500
Unfavorable years		900	500	900	800	900	200

1277 -HART CAMP-INDIAN ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or inclusion number					
		HART CAMP	INDIAN	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Dasick bluegrass	FOCU3	---	---	5 15	---	---	8 18
Idaho fescue	FEID	5 20	30 50	50 60	---	18 25	40-60
Thurber needlegrass	STNE2	5-10	2 8	-	5 10	---	---
basin wildrye	ELCT2	5-10	---	2 5	2 10	---	2-8
bluebunch wheatgrass	ADSV	28-36	18-30	5-15	60 70	-	---
bluegrass	FOGA+	---	2 8	---	---	8 18	---
quidaweed	MAPLO2	---	---	---	---	2-5	---
Douglas rabbitbrush	CRVIB	---	-	---	---	2 8	---
antelope bitterbrush	PUTR2	15-25	---	---	2 8	---	-
low sagebrush	AKASH	---	10-20	---	---	35 45	---
mountain big sagebrush	AKVH2	5-15	---	5-18	10-20	---	5 15
snowberry	STNFB	---	---	2 5	---	---	---
Range site number		023XY015MV	023XY017MV	023XY054MV	023XY016MV	023XY008MV	023XY009MV
Potential production (lb/acre)							
Favorable years		1800	900	1800	1500	400	1800
Normal years		1200	700	1200	1100	250	1500
Unfavorable years		900	500	900	800	200	1200

1276 POLTE-HART CAMP ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or inclusion number					
		POLTE	HART CAMP	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Quack bluegrass	POQU1			---		5-15	5-15
Idaho fescue	FRID	40-50	5-20	40-60	30-40	50-60	40-60
Fourber needlegrass	STIN1		5-10		2-3	---	---
Basin wildrye	BLCI2		5-10		5-10	2-8	2-8
blues bunch wheatgrass	AGSP	2-5	25-35		25-40	5-15	---
bluegrass	POA++		-	2-3	2-5		---
needlegrass	STIPA			5-15		--	-
antelope bitterbrush	POBR2	10-20	15-25	---	2-10	---	---
mountain big sagebrush	ARV22	10-20	5-15	10-20	10-20	5-15	5-15
snowberry	SYNPH	---	-			2-5	-
Range site number		023XY046NV	023XY015NV	023XY094NV	023XY007NV	023XY056NV	023XY034NV
Potential production (lb./acre)							
Favorable years		1300	1500	1300	1500	1500	1400
Normal years		1100	1200	1000	1200	1200	1500
Unfavorable years		900	900	700	900	900	1200

1279 HART CAMP-MUTLAN-WESTBUTTLE ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or inclusion number--						
		HART CAMP	MUTLAN	WESTBUTTLE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cusick bluegrass	POCU3	--	---	---	---	---	--	5-15
Idaho fescue	FEID	5-20	40-50	30-40	15-25	40-60	30-50	50-60
Thurber needlegrass	STIR2	5-10		2-5		--	2-4	--
basin wildrye	ELCY3	5-10		5-10	--	--	--	2-5
bluebunch wheatgrass	AGSP	25-35	1-5	25-40		2-10	15-30	5-15
bluegrass	POH++			2-5	5-15	5-10	2-3	
goldenweed	HAFL02	--	--	---	2-5		---	---
Douglas rabbitbrush	CHV13	--	--		2-5	--	---	--
antelope bitterbrush	PUTR2	15-25	10-20	2-10		---	---	---
low sagebrush	ARAB3	--	---	--	35-45	10-20	10-20	---
mountain big sagebrush	BEVA2	5-15	10-20	10-20		---		5-15
snowberry	SYNPF		---	--				2-5
Range site number		021XY015MV	021XY066MV	021XY007MV	021XY064MV	021XY079MV	021XY017MV	021XY050MV
Potential production (lb/acre):								
Favorable years		1500	1100	1600	400	1200	900	1500
Normal years		1200	1100	1200	150	900	700	1200
Unfavorable years		900	900	900	100	600	500	900

1285 STAGS-INDIAN CREEK ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or inclusion number			
		STAGS	INDIAN CREEK	Inclusion 1	Inclusion 2
Canby bluegrass	POCA	2-5	---	---	
Indian ricegrass	GRNY			5-15	
Sandberg bluegrass	POSB	-	---	2-5	
Thurber needlegrass	STNR2	15-20	10-40	20-40	10-20
Webber needlegrass	STNR	-	5-15	2-8	
basin wildrye	ELC12	5-10	-		2-10
bluebunch wheatgrass	AGSP	30-40	2-8		40-60
bluegrass	POA++		8-10		
Bottlebrush squirreltail	BLZY	-	---	2-5	
Douglas rabbitbrush	CHY18		2-5		
Wyoming big sagebrush	ARTRW	-		20-10	10-20
antelope bitterbrush	PUTR2	2-10	---		2-5
big sagebrush	ARTR2	15-25			15-25
low sagebrush	AKAR6	-	20-30		
mountain big sagebrush	AKVA2				10-20
spiny hopsage	GRSP	-		2-5	-
Range site number		023XY020NV	023XY089NV	023XY006NV	023XY039NV
Potential production (lb/acre):					
Favorable years		1100	600	800	900
Normal years		900	450	600	700
Unfavorable years		600	100	400	500

1285--XYMANS: COTANT-EART CAMP ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number--				
		XYMANS	COTANT	EART CAMP	Inclusion 1	Inclusion 2
Canby bluegrass	POCA	2-5	---	---	---	---
Idaho Fescue	PNID	--	10-20	5-10	--	--
Indian ricegrass	GRHV	--	---	--	5-15	5-15
Sandberg bluegrass	POSE	--	--	--	2-5	2-5
Thurber needlegrass	GTNE	4-10	2-5	5-10	20-40	20-40
Habber needlegrass	STNE	--	--	--	2-5	2-5
hairy wildrye	ELC12	5-10	---	1-10	--	--
bluebunch wheatgrass	AGSP	30-40	25-70	25-35	--	--
bluegrass	POA++	---	2-5	--	--	--
bottlebrush squarrose	GIET	---	---	--	2-5	2-5
Wyoming big sagebrush	ARTEM	---	---	--	10-70	20-30
antelope bitterbrush	PUTR2	2-10	---	15-25	--	--
big sagebrush	ARTR2	15-25	---	---	--	--
low sagebrush	ARAR1	---	10-20	--	--	--
mountain big sagebrush	ARVA2	--	---	5-15	--	--
spiny hopsage	GRSP	--	---	--	2-5	2-5
Range site number		023XY020HV	023XY017HV	023XY015HV	023XY006HV	023XY005HV
Potential production (lb/acre)		1100	900	1500	800	800
Favorable years		900	700	1200	600	600
Normal years		600	500	900	400	400
Unfavorable years		400	500	900	400	400

1195- BAPWOOD-BADGERCAMP-EACENWOOD ASSOCIATION

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable.
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Percentage composition and production (dry weight) of plants on major soils and inclusions							
Common plant name	Plant symbol	Soil name or Inclusion number					
		BAPWOOD	BADGERCAMP	EACENWOOD	Inclusion 1	Inclusion 2	Inclusion 3
Columbia needlegrass	STNE3		---		5-15	-	---
Idaho fescue	FEID	10-20	10-20	X	-	30-40	---
Letterman needlegrass	STNE4	---	---				X
Nevada bluegrass	POWE1	2-5		X	-		
Thurber needlegrass	STNE2	---	---		-	2-8	---
basin wildrye	ELCT2				-	5-10	
big squirreltail	SIJU	---	---	X	-		---
bluebunch wheatgrass	AGSP	-	5-15		-	25-40	X
bluegrass	FOR+		2-5	---	-	2-5	---
belic	HELT3		-	X		-	-
mountain brome	BRCA5	10-20	2-5	X	5-15	-	
wetongrass	POPE				-	-	X
needlegrass	STNE4	10-20	5-15	---	-	---	---
purple orchardgrass	HESP	2-5			-	---	-
sedge	CEREK	-	---	---			X
slender wheatgrass	AGTR	2-5		X	5-10	---	
sandwort	TRALI2		---	X	---		-
antelope bitterbrush	PTTR2	2-5			---	2-10	-
common juniper	JUNC6		---	---	---	-	X
curlleaf mountainmahogany	CRUL1		20-40		---	---	
mountain big sagebrush	ARVAL		5-10	X	---	10-20	X
quaking aspen	PORT			X	45-60	---	
snowberry	SYMP3	2-5	2-5	X	2-5		
snowbrush ceanothus	CEVE	-		---	---	---	X
white fir	ABCO		-	-	-		X
quaking aspen	PORT		-	X	45-60	---	
Range site number		021XY015NV	021XY026NV	021XY024NV	021XY027NV	021XY007NV	021XY092NV
Potential production (lb./acre)							
Favorable years		2600	1400	600	800	1400	700
Normal years		1000	1100	400	800	1200	500
Unfavorable years		1400	600	250	300	900	300

1295 DEVON-BLIZZARD COMPLEX 2 TO 15 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential native plant community

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants on major soils and inclusions)					
		Soil name or inclusion number					
		DEVON	BLIZZARD	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cusick bluegrass	POCV3						5 16
Idaho fescue	FEID	40 60	30-30	30 50	30-50	40 60	50-60
Thurber needlegrass	STTH2		2 8	2 8	2 8		--
Basin wildrye	ELC12				-		2 5
bluethroat wheatgrass	AOSP		15 30	15 30	15 30		5-15
bluegrass	POA++	2 8	2 8	2 8	2 8	2 8	
seedgrass	STIPA	5 15			-	5 15	-
low sagebrush	ARAB8		10 20	10 20	10-20		--
mountain big sagebrush	ARVA2	10 20				10 20	5 15
snowberry	SYMEK						2 5
Range site number		0231Y094HV	0231Y017HV	0231Y017HV	0231Y017HV	0231Y094HV	0231Y054HV
Potential production (lb. acre)							
Favorable years		1300	900	900	900	1300	1500
Normal years		1000	700	700	700	1000	1200
Unfavorable years		700	500	500	500	700	900

1296 BLIZZARD VERY COARSE SILTY CLAY LOAM 0 TO 14 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or inclusion number			
		BLIZZARD	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	10-50	10-50	5-20	10-20
Nevada bluegrass	PONE1	-	-	---	2-5
Thurber needlegrass	STTB1	2-8	2-8	5-10	-
basin wildrye	ELC12	-	-	5-10	-
bluebunch wheatgrass	AGSF	18-30	15-30	25-35	-
bluegrass	POA++	4-8	2-8	-	---
mountain brome	BRCAS	-	-	-	10-20
needlegrass	STIPA	---	-	-	10-20
purple orchardgrass	MESE	-	-	-	2-5
slender wheatgrass	AGTR	-	-	-	2-6
antelope bitterbrush	PSYR2	-	-	15-25	2-5
low sagebrush	ARAB2	10-20	10-20	-	-
mountain big sagebrush	ARVA2	-	-	5-15	-
snowberry	STAMP	-	-	-	2-8
Range site number		023XT017NV	023XT017NV	023XT015NV	023XT065NV
Potential production (lb/acre)					
Favorable years		900	900	1300	2600
Normal years		700	700	1200	1800
Unfavorable years		500	500	900	1400

1305- UPDIKE-MAZOMA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number				
		UPDIKE	MAZOMA	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORIT	---	10-20	2-5		---
Common alkaligrass	PULR			---	20-35	2-8
Nevada bluegrass	PONE3	--	-		40-50	10-20
basin wildrye	ELC11	15-20		5-20	2-8	50-60
bottlebrush squirreltail	SIEY	2-10	5-10	2-5		--
inland siltgrass	DISPE2	2-8	-		5-20	2-8
globeamallow	SPKAR	--	--	1-2		--
other perennial forbs	FFFF	-	-		10-20	-
theatropy	TRKLY			2-4		
big sagebrush	ARTR2	--	--	10-25		-
black greasewood	SAVE4	50-65	-	20-30		5-10
bad sagebrush	ARPP4		5-15	--		
other shrubs	SSSS				0-5	
shadscale	ATCO	--	40-50	---		
spiny hopsage	GRSP		5-15	5-15		
threelobed rubber rabbitbrush	CHRAC1		-	---	--	2-5
winterfat	BULAI		2-5			
Range site number		024XY008NV	024XY009NV	024XY022NV	023XY002NV	021XY010NV
Potential production lb/acre:						
Favorable years		700	900	800	1300	2200
Normal years		450	700	600	1000	1700
Unfavorable years		300	500	350	700	1000

1106 UPDIKE-LONGDIS ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or inclusion number--			
		UPDIKE	LONGDIS	Inclusion 1	Inclusion 2
Indian ricegrass	CHRY		2-8		
Common alkaligrass	POLE		---	2-8	---
Nevada bluegrass	POHE3	-		10-20	
basin wildrye	ELC12	15-20	5-20	50-60	-
bottlebrush squirreltail	SINT	2-10	2-5		
Island saltgrass	DISP22	2-8	---	2-8	
globemallow	SPHAE		1-2		
thelypody	THELY		2-8	-	
big sagebrush	ARTR2		10-25	-	
black greasewood	SAYE4	50-65	20-30	5-10	
spiny hopsage	GRSP		8-18		
threadleaf rubber rabbitbrush	CHRACT		---	2-5	
Range site number		024XT0048W	024XT0228W	023XT0108W	Scum
Potential production (lb./acre)					
Favorable years		700	800	2200	
Normal years		450	600	1700	
Unfavorable years		300	350	1000	

1310- LONGBUSH-UPDIKE ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants on major soils and inclusions)					
		Soil name or inclusion number-					
		LONGBUSH	UPDIKE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	ORRY	2-5	--	--			--
Limon alkali-grass	WOLE		2-5		20-35		
Nevada bluegrass	POME3	--	10-20	2-10	40-50		--
Thurber needlegrass	STINE2					5-18	
Basin wildrye	ELC12	5-20	10-10	40-60	2-4	30-40	--
Bluegrass	POA++	--	--	--		10-40	--
bottlebrush squarreltail	SIRY	2-5	--	--	--		
inland saltgrass	DISPS2		2-8	--	5-20	--	
Western wheatgrass	AGSM		--	2-10			
globeammon	SPHAE	1-2			--	--	--
lupine	LUPIN	--	--	--		2-5	--
other perennial forbs	PPFF	--			10-20	--	--
povertyweed	IVAX		--	2-5	--		
theilipody	THELY	2-4	--	1-3	--	--	--
basin big sagebrush	ARTET			5-15	--		
big sagebrush	ARTK1	10-25				15-25	--
black greasewood	SAVE4	20-30	5-10	--	--	--	--
other shrubs	SSSS		--	--	0-5	--	--
spiny hopsage	GRSD	5-15		--			--
threadleaf rubber rabbitbrush	CHMEL		2-5	--	--		--
Range site number		024XY022WV	023XY016WV	023XY005WV	023XY002WV	023XY002WV	none
Potential production lb/acre:							
Favorable years		400	3200	3000	1300	1100	
Normal years		400	1700	2000	1000	800	
Unfavorable years		350	1000	1500	700	600	

1111 LONGDISH-MACTYLET-AMERIC SPIRIGUENTS ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Percentage composition and production (dry weight) of plants on major soils and inclusions						
Common plant name	Plant symbol	Soil name or inclusion number				
		LONGDISH	MACTYLET	AMERIC SPIRIGU	Inclusion 1	Inclusion 2
					Inclusion 3	
Canby bluegrass	POCA	-	-	-	-	2 %
Canuck bluegrass	POCU3	-	20-30	-	-	-
Indian ricegrass	DRNY	-	-	-	15-25	-
Nevada bluegrass	PONE3	15-35	2-8	-	-	-
Thurber needlegrass	STNE2	-	25-35	-	-	15-20
Wahner needlegrass	STNE	-	-	-	-	5-15
basin wildrye	ELCT3	-	5-15	-	2-8	5-10
bluebunch wheatgrass	AGSP	-	-	-	30-40	2-8
bluegrass	POA++	-	-	-	-	5-10
creeping wildrye	ELTR3	5-10	-	-	-	-
mat subly	MURI	5-10	-	5-10	-	-
needleandthread	STCO4	-	-	-	20-40	-
tuickspike wheatgrass	AGDA	-	-	-	2-5	-
dock	ROMEX	-	-	1-2	-	-
eveningprimrose	QENOT	-	-	2-5	-	-
lupine	LUPIN	-	2-5	-	-	-
povertyweed	IVAX	-	-	5-10	-	-
leaves rabbitbrush	CEVIO	-	-	-	-	1-5
antelope bitterbrush	MYR2	-	-	-	2-10	-
big sagebrush	AMTR2	-	-	-	10-20	15-25
early sagebrush	ARLOP	-	15-25	-	-	-
low sagebrush	ARAL3	-	-	-	-	20-30
rubber rabbitbrush	CHRA2	2-5	-	-	-	-
silver sagebrush	ARCAL3	10-40	-	-	-	-
spiny hoggage	GR33	-	-	-	2-8	-
Range site number		011XY005NV	011XY090NV	011XY013NV	011XY051NV	011XY020NV
Potential production (lb/acre)						
Favorable years		1400	200	1500	900	1300
Normal years		1400	700	400	700	900
Unfavorable years		700	450	0	500	600

1112- LOWMOIS-SUDAN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants on major soils and inclusions)				
		Soil name or inclusion number--				
		LOWMOIS	SUDAN	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	DIRY	2-5	-	-	5-15	-
Common alkaligrass	PULX	-	-	2-8	-	-
Nevada bluegrass	POHE	-	2-10	10-20	-	-
Sandberg bluegrass	POSE	-	-	-	2-5	-
Thurber seed grass	STHE	-	-	-	20-40	5-15
Mohr seedgrass	STHE	-	-	-	2-8	-
basin wildrye	ELC12	5-10	40-60	50-60	-	10-40
bluegrass	POH+	-	-	-	-	10-40
bottlebrush squirreltail	STHY	2-5	-	-	2-5	-
inland saltgrass	DISP82	-	-	2-8	-	-
western wheatgrass	ACSM	-	2-10	-	-	-
glabermallow	STHAE	1-2	-	-	-	-
lupine	LUP14	-	-	-	-	2-5
povertyweed	IVAN	-	2-5	-	-	-
chalybudy	TEKLY	2-4	1-3	-	-	-
Wyoming big sagebrush	ARTW	-	-	-	20-30	-
basin big sagebrush	ARTY	-	5-15	-	-	-
big sagebrush	ART2	10-25	-	-	-	15-25
black greasewood	SAVE	10-30	-	5-10	-	-
spiny hawthorn	CHSP	5-15	-	-	2-5	-
threadleaf rubber rabbitbrush	CHMAC	-	-	2-8	-	-
Range site number		024X022NV	021X005NV	023X010NV	023X006NV	021X002NV
Potential production (lb/acre)						
Favorable years		400	1000	2200	400	1100
Normal years		400	2000	1700	400	800
Unfavorable years		350	1300	1000	400	600

1313--LONGVIEW SILT LOAM, 0 TO 2 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production dry weight of plants on major soils and inclusions			
		Soil name or inclusion number			
		LONGVIEW	Inclusion 1	Inclusion 2	Inclusion 3
Lemon alkaligrass	FULK	---	20-25		
Nevada bluegrass	PONE3	15-25	40-50	2-8	---
basin wildrye	WLC12	---	2-8	41-71	---
creeping wildrye	WLC13	5-11		" "	
inland saltgrass	DISP21		5-20		---
mat shrub	MERY	5-10		---	5-10
dock	PUNEK	---	"		" 2
swainsonprairie	OWOT			---	2-3
other perennial forbs	FFFF	---	10-20		"
povertyweed	IVAX				5-10
basin big sagebrush	MTST			5-10	"
other shrubs	SSSS		0-5	---	
rubber rabbitbrush	CRMA2	2-5		1-3	---
silver sagebrush	ARCA13	30-40		"	
Range site number		023X7003NV	023X7002NV	023X7001NV	023X7004NV
Potential production lb./acre					
Favorable years		1800	1300	5500	1500
Normal years		1400	1000	4500	1000
Unfavorable years		700	700	1500	0

1120. DOONAY FINE SANDY LOAM. 0 TO 2 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production dry weight, of plants on major soils and inclusions				
		Soil name or inclusion number				
		DOONAY	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Belted rush	JURA	---	--		--	2-4
Indian ricegrass	ORRY			2-5	10-40	--
Lemon alkali-grass	POLE	--	2-6			--
Nevada bluegrass	POWEL	2-10	10-30			40-60
basin wildrye	SLCT2	40-60	40-60	5-20	2-5	2-8
hottelbrush squirreltail	SIST	--	--	2-5		--
inland saltgrass	SISPI2		2-8		--	
seedow barley	ROBL2	--				2-8
needleandthread	STCO4				5-15	
sedge	CASKE	--				10-20
thickspike wheatgrass	AGDA				2-8	--
western wheatgrass	AGSM	2-10	--		---	
globemallow	SEKAK			1-1	---	
povertyweed	IVAL	2-5	--			--
chelypody	REELY	1-3		2-4	---	
basin big sagebrush	ARTWT	5-15	--		10-25	---
big sagebrush	ARTR2			10-25	---	
black greasewood	SAYME		5-10	20-30		--
fourwing saltbush	ATCA2				2-8	---
spiny hopsage	UNSP			5-15	5-10	---
threadleaf rubber rabbitbrush	CHMAC2	---	2-5		---	---
Range site number		021XY005MV	021XY010MV	024XY022MV	023XY011MV	021XY009MV
Potential production (lb/acre)						
Favorable years		3000	2200	800	800	4000
Normal years		2000	1700	600	600	3000
Unfavorable years		1300	1000	350	300	2000

132.--BUDWAY UPRIDE ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

		Percentage composition and production dry weight of plants on major soils and inclusions				
Common plant name	Plant symbol	Soil name or inclusion number				
		BUDWAY	UPRIDE	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORRY	--		2-3		---
Lamson alkaligrass	POTE		2-4			20-35
Nevada bluegrass	POWE3	2-10	10-20			40-50
basin wildrye	ELCI2	40-60	50-60	5-20	15-20	2-8
bottlebrush squirreltail	SIRY	-	---	2-5	2-10	
inland siltgrass	DISF22	-	2-6	-	2-8	5-20
western wheatgrass	ACSW	2-10		---		--
globemallow	JYMA5	-	---	1-3		
other perennial forbs	PPPF		---	--		10-20
povertyweed	IVAX	2-5	-		-	
chamlypod	THLY	1-3		2-4	--	
basin big sagebrush	ARTAT	5-11	-	-		-
big sagebrush	ART2	-		10-25	-	
black greasewood	SAVE4		5-10	20-30	50-65	
other shrubs	SSSS	-		-		0-5
spiny hopsage	GRSP			5-15		--
threadleaf rubber rabbitbrush	CHBAC2	-	2-5		-	
Range site number		023XY005MV	023XY010MV	024XY022MV	024XY003MV	023XY002MV
Potential production (lb./acre)						
Favorable years		1000	2200	800	700	1300
Normal years		2000	1700	600	450	1000
Unfavorable years		1300	1000	350	100	700

1325--REYNAT-DEVADA MARY CAMP ASSOCIATION

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number					
		REYNAT	DEVADA	MARY CAMP	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	2-5					
Idaho fescue	FEID			5-20	X		30-40
Nevada bluegrass	PONE1		X				
Sandberg bluegrass	POSE	X					
Thurber needlegrass	STNE2	15-20	10-25	5-10	10-20	10-40	X
Muhlenberg needlegrass	STNE	X				5-15	
Benise wildrye	ELCH2	1-10		5-10	2-10		X
bluecrunch wheatgrass	LOSP	30-40	20-50	25-35	40-60	2-5	X
bluegrass	POA++		5-10			5-10	X
Douglas rabbitbrush	CRUI4	X	X			2-5	
Wyoming big sagebrush	ARTW				10-20		X
antelope bitterbrush	PONE2	2-10	X	15-25	2-5		
big sagebrush	ARTW2	15-25			15-25		
low sagebrush	ARAB4	X	10-20	X		20-30	X
mountain big sagebrush	ARVA2	X	X	5-15	10-20		10-20
Range site number		021XY020NV	022XY021NV	023XY025NV	023XY039NV	021XY059NV	022XY024NV
Potential production (lb/acre):							
Favorable years		1100	900	1500	900	400	700
Normal years		900	700	1200	700	450	500
Unfavorable years		600	500	900	500	300	250

1325--HIGHWAY VERY STONY LOAM 8 TO 10 PERCENT SLOPES

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or inclusion number			
		HEXHA	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID			X	
Indian ricegrass	CAHY		5-15		---
Nevada bluegrass	POWE1			X	
Sandberg bluegrass	POSE		2-5	X	---
Thurber needlegrass	STTH2	10-20	20-40	X	5-10
Nehmer needlegrass	STNE		2-5		
basin wildrye	ELCI2	2-10		X	2-10
bluebunch wheatgrass	AGSP	40-60		X	60-70
bottlebrush squarlettail	SIRY		2-5		---
Wyoming big sagebrush	ARTW	10-20	20-30		---
antelope bitterbrush	PUTR2	2-5		---	2-5
big sagebrush	ARTR2	15-25	---		
mountain big sagebrush	ARVA2	10-20	---	X	10-20
spiny hopsage	GRSP	---	2-5		
Range site number		023XY035NV	023XY006NV	023XY014NV	023XY016NV
Potential production (lb. acre):					
Favorable years		800	800	700	1800
Normal years		700	600	500	1100
Unfavorable years		500	400	300	800

1327 KEYWAT-WESTBUTTE-SAPOOD ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or inclusion number					
		KEYWAT	WESTBUTTE	SAPPOOD	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA	2-5	---	-	---	-	---
Idaho fescue	PRID	--	10-40	10-20			5-20
Nevada bluegrass	POWE3		--	2-5			
Thurber needlegrass	STNE2	15-20	2-8		10-25	10-20	5-10
basin wildrye	ELCI2	5-10	5-10			2-10	5-10
blinabunch wheatgrass	AGSD	30-40	28-40		20-30	40-60	25-35
bluegrass	POA++	-	2-5		5-10		
mountain bromes	BRCA5			10-20			
needlegrass	STIPA			10-20	--		-
purple oatgrass	MYG3P	---		2-5			
s. slender wheatgrass	MYG1			2-8			
Wyoming big sagebrush	ARTEM	---	-	-	---	10-20	
antelope bitterbrush	PUTR2	2-10	2-10	2-5		2-5	15-25
big sagebrush	ARTR2	15-25	---		--	15-25	
low sagebrush	ARAR8	-			10-20		---
mountain big sagebrush	ARVA2		10-20		-	10-20	1-15
snowberry	SYNBR			2-8			---
Range site number		023XY020HW	023XY007HV	023XY065HW	023XY031HV	023XY019HW	023XY015HV
Potential production lb/acre:							
Favorable years		1100	1600	1600	900	900	1500
Normal years		900	1200	1800	700	700	1200
Unfavorable years		600	900	1400	500	500	900

4324 KEYMAT-PEPPERPOINT ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants on major soils and inclusions)				
		Soil name or inclusion number				
		KEYMAT	PEPPERPOINT	Inclusion 1	Inclusion 2	Inclusion 3
Conby bluegrass	POCA	4 5	2 5			2 7
Indian ricegrass	ORRY			5 15	5 15	-
Sandberg bluegrass	POSE	-		2 5	2 5	
Thurber needlegrass	STTE2	15 20	15 20	20 40	20 40	15-20
Wabber needlegrass	STWE	-		2-8	2 8	
basin wildrye	ELC12	5 10	5 10			5 10
bromunch wheatgrass	AGSP	30 40	30-40		-	30-40
bottlebrush squirreltail	SEBY			2 5	2 5	
Wyoming big sagebrush	ARTRW			20 30	20 30	
antelope bitterbrush	EUYK2	2 10	2 10			2 10
big sagebrush	ARTR2	15 25	15 25		-	15 25
spiny hopsage	DSSE			2 5	2 5	
Range site number		023XY020MV	021XY020MV	023XY006MV	021XY006MV	023XY020MV
Potential production lb./acre.						
Favorable years		1 00	1100	800	800	1100
Normal years		300	900	600	600	900
Unfavorable years		600	600	400	400	600

1119 - KEYWAT-DEVADA ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number--				
		KEYWAT	DEVADA	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA			2-5	---	---
Idaho fescue	FEID				10-40	---
Indian ricegrass	ORRY	---	---	---		5-15
Sandberg bluegrass	POSK	-	-		---	2-5
Tourber needlegrass	STTB	10-20	10-25	15-20	2-8	10-40
Webber needlegrass	STWE	---	---		--	2-8
Basin wildrye	ELWI	2-10	---	5-10	5-10	--
bluebunch wheatgrass	AGSP	40-60	20-50	20-40	25-40	---
bluegrass	PQA--		5-10	---	2-5	---
Bottlebrush squirreltail	SIRV	-	-	-		2-5
Wyoming big sagebrush	ARWY	10-20		-	---	20-30
antelope bitterbrush	MYTB	2-5	-	2-10	2-10	--
big sagebrush	ARST	15-25	-	15-25		---
low sagebrush	ARAL	-	10-20	-	--	---
mountain big sagebrush	ARVA	10-20	-	---	10-20	--
spiny hopye	GRSP	-				2-5
Range site number		023XY039MV	023XY031MV	023XY020MV	023XY007MV	023XY006MV
Potential production (lb/acre):						
Favorable years		900	900	1100	1600	800
Normal years		700	700	900	1200	600
Unfavorable years		500	500	500	900	400

1131 WESTBURY-ROCK OUTCROP ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable.
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number				
		WESTBURY	ROCK OUTCROP	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FRID	10-40		X	X	5-20
Nevada bluegrass	POKE3			X	X	---
Sandberg bluegrass	POSE			--	X	
Thurber needlegrass	STTB2	2-8	---	--	X	5-10
basin wildrye	ELC12	5-10	---	---	X	5-10
big squirreltail	SIJU	---	---	X	---	---
bluebunch wheatgrass	AGSP	15-40			X	25-35
bluegrass	POA++	2-5	---	-	-	-
melic	MELIC			X	---	---
mountain brome	BRCA5	---	---	X	---	---
slender wheatgrass	AGTA			X	-	--
madwort	TRAL13	---	---	X		
antelope bitterbrush	PUT12	2-10	---	---	---	15-25
mountain big sagebrush	ARVA2	10-20	---	X	X	5-15
snowberry	SYMP4			X	---	--
quaking aspen	POPA1	---	---	X		
Range site number		023XY007NV	none	023XY024NV	023XY024NV	023XY015NV
Potential production lb/acre)						
Favorable years		1600		600	700	1500
Normal years		1200		400	500	1200
Unfavorable years		900		250	300	800

1336 -WESTBOTTIE-ASHTAB-TUSPORE ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or inclusion number--					
		WESTBOTTIE	ASHTAB	TUSPORE	Inclusion 1	Inclusion 2	Inclusion 3
					Inclusion 4		
Cusick bluegrass	POCU3	---	---	5-15	5-10	---	---
Idaho fescue	FEID	30-40	40-60	10-60	20-40	30-40	40-50
Thurber needlegrass	STTB2	2-8	---	-	-	2-8	2-8
basin wildrye	BLCT2	5-10	---	2-5	-	5-10	---
bluemunch wheatgrass	AGSF	25-40	-	5-15	2-5	25-40	2-5
bluegrass	POA++	2-5	2-8	-	-	2-5	---
needlegrass	STTA	---	5-15	-	5-15	---	---
antelope bitterbrush	PUTB2	2-10	---	-	-	2-10	10-20
low sagebrush	ARAB2	---	---	-	-	---	10-20
mountain big sagebrush	ARV22	10-20	10-20	5-15	15-25	10-20	10-20
snowberry	SYMBE	---	---	2-8	-	---	---
Range site number							
		021XY007MV	021XY094MV	021XY054MV	041XY061MV	021XY007MV	021XY066MV
Potential production (lb/acre)		1600	1300	1500	900	1400	1300
Favorable years		1200	1000	1200	700	1200	1100
Normal years		900	700	900	500	900	800
Unfavorable years		---	---	---	---	---	---

1345 LAYVIEW-BAPGOOD ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Common plant name	Plant symbol	Percentage composition and production dry weight of plants in major soils and inclusions				
		Soil name or inclusion number				
		LAYVIEW	BAPGOOD	Inclusion 1	Inclusion 2	Inclusion 3
Columbia needlegrass	SYNE3	-	---	-	-	5-15
Idaho fescue	FEID	40-80	10-20	15-25	10-20	-
Nevada bluegrass	PONE1	-	2-8	-	-	-
Bluebunch wheatgrass	AGSP	2-5	-	-	5-15	-
Bluegrass	POA++	5-15	-	5-15	2-5	-
Mountain brome	BROM3	-	10-20	-	2-8	5-15
Sandgrass	STIP4	-	10-20	---	5-15	-
Onespike oatgrass	DAIM	1-3	---	-	-	-
Purple oniongrass	MESP	---	2-5	-	-	-
Slender wheatgrass	AGTR	-	2-8	-	---	5-10
Arrowweed beargrass	BAGA1	2-5	-	-	---	-
Goldenweed	BAPLO2	-	-	2-5	---	---
Douglas rabbitbrush	CEV14	-	-	2-5	-	---
Sagebrush bitterbrush	PUT21	---	2-5	---	---	-
Cutleaf mountainmahogany	CELE1	-	-	-	25-40	---
Low sagebrush	ARAB5	10-20	-	35-45	-	---
Mountain big sagebrush	ARVA2	-	-	-	5-10	-
Quaking aspen	POKE7	-	-	-	-	15-60
Snowberry	SYNE8	-	2-8	-	2-5	2-5
Range site number		023XY014NV	023XY066NV	023XY008NV	023XY026NV	023XY017NV
Potential production lb. acre.:						
Favorable years		800	1800	400	1400	800
Normal years		600	1800	200	1100	500
Unfavorable years		400	1400	200	600	300

134C--LAYVIEW-WESTBOTTIE-HAPGOOD ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential active plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or Inclusion number--					
		LAYVIEW	WESTBOTTIE	HAPGOOD	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	40-50	30-40	10-20	15-25	10-20	--
Nevada bluegrass	POHE1	--	--	2-5	--	--	40-50
Thunder needlegrass	STHE2	---	2-8	--	--	--	--
basin wildrye	ELC17	--	5-10	---	--	--	--
bluethunk wheatgrass	AQSW	2-5	25-40	--	--	5-15	--
bluegrass	POA++	1-18	2-8	---	5-15	2-5	--
mountain brome	BRCAS	---	--	10-20	--	2-8	--
needlegrass	STIPA	--	--	10-20	--	1-15	--
cheesepike oatgrass	BAOM	1-3	--	--	--	--	--
purple oniongrass	HEEP	--	--	2-5	--	--	--
sedge	CAREX	---	--	--	--	--	5-15
glander wheatgrass	AGTK	--	--	2-8	---	--	--
arrowleaf balsamroot	BSFA3	2-5	--	--	--	--	--
goldenweed	HAPLO2	---	--	--	2-5	--	--
Douglas rabbitbrush	CEV14	--	--	---	2-8	--	--
antelope bitterbrush	FUTU1	---	2-10	2-5	---	--	--
curleaf mountainmahogany	CELE21	--	--	---	--	25-40	--
low sagebrush	ARAB2	10-20	---	--	18-45	--	--
mountain big sagebrush	ARVA2	---	10-20	---	--	5-10	--
juneherry	STHPE	--	--	2-8	---	2-5	---
Range site number		023XY014MV	023XY007MV	023XY065MV	023XY008MV	023XY024MV	023XY013MV
Potential production (lb/acre)							
Favorable years		800	1600	2600	400	1400	2200
Normal years		600	1200	1800	350	1100	1700
Unfavorable years		400	900	1400	200	600	1300

1355--BADGERCAMP-BACKWOOD-EASTE ASSOCIATION (TO 10 PERCENT SLOPES)

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable.
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or inclusion number						
		BADGERCAMP	BACKWOOD	EASTE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Columbia needlegrass	STNE3	---	---	--	5-15	---	---	---
Idaho fescue	FEID	10-20	X	---	--	10-40	2-5	---
Letterman needlegrass	STLE4	---	-	X	---	-	---	---
Nevada bluegrass	PCNE3	---	X	---	---	--	--	---
Thurber needlegrass	STTW1	---	-	--	---	2-8	---	---
basin wildrye	BLCI2	-	---	--	---	5-10	2-8	---
big squirreltail	SIJU	---	X	--	---	---	---	---
bluebunch wheatgrass	WBSB	5-15	---	X	---	15-40	-	---
bluegrass	POA++	2-5	---	-	---	1-8	5-10	10-20
meadow barley	HOBL2	---	---	---	---	--	--	5-10
salic	HELI1	---	X	---	---	---	---	-
mountain brome	BROM1	2-8	X	---	5-15	---	20-40	---
cuttongrass	POPE	---	---	X	---	---	---	---
needlegrass	STIPA	5-15	---	---	---	---	10-20	---
rush	JUNCO	-	-	---	--	--	---	5-10
sedge	CAREX	---	---	X	---	---	---	5-10
slender wheatgrass	AGT1	--	X	--	5-10	---	---	---
tufted hairgrass	DRCE	---	--	--	---	---	---	30-50
meadowvase	TRALIZ	---	X	--	---	---	---	-
antelope bitterbrush	PUTW2	--	---	-	-	2-10	-	---
common juniper	JUNCO	---	---	X	-	---	---	---
curlleaf mountain mahogany	CELE3	25-40	---	---	-	---	--	---
mountain big sagebrush	ARVA2	5-10	X	X	--	10-20	5-15	---
quaking aspen	PO-KF	---	X	---	45-60	---	---	---
sawberry	STMY1	2-5	X	--	2-5	---	1-5	---
sagebrush ceanothus	CEVE	---	---	X	---	---	---	---
white fir	ABCO	---	---	X	---	---	---	---
quaking aspen	POTRT	---	X	---	45-60	---	-	---
Range site number		023XY026RV	023XY028RV	023XY092MV	023XY027MV	023XY007MV	023XY019MV	023XY025RV
Potential production (lb. acre):								
Favorable years		1400	600	700	800	1600	2200	4000
Normal years		1100	400	500	500	1200	1800	3000
Unfavorable years		600	250	300	300	900	1500	2000

1156 BADGERCANY-BACKWOOD-EAST ASSOCIATION 70 TO 75 PERCENT SLOPES

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name or inclusion number						
		BADGERCANY	BACKWOOD	EAST	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Columbia needlegrass	STNE1				5 15			
Idaho fescue	FEID	10 20	X			10 20	10 40	2-5
Letterman needlegrass	STNE4			X				
Nevada bluegrass	PONE3		X			2 5		
Thurber needlegrass	STNE2						2 8	
basin wildrice	ELCE2						5 10	2 5
big squirreltail	SLTU		X					
bluestemmed wheatgrass	AGSP	5 15		X			25 40	
bluegrass	POBA	2-5					2-5	5 10
melic	MELE10		X					
mountain brome	BRCA1	2 8	X		5-15	10 20		20 40
nuttgrass	POPE			X				
needlegrass	STPA	5 15				10 20		10 20
purple oniongrass	ONSP					2 5		
sedge	CAREX			X				
slender wheatgrass	AGTR		X		5-10	2-8		
sudowite	TRAL12		X					
antelope bitterbrush	BUTR1					2-5	2-10	
common juniper	JUNC6			X				
curliest mountainmahogany	CHLE3	25 40						
mountain big sagebrush	ARVA2	5 10	X	X			10 20	5 15
Quaking aspen	POKY		X		45 60			
snowberry	SYMEH	2 5	X		2-5	2 8		2 5
snowbrush cosmos	CEVE			X				
white fir	ABCO			X				
quaking aspen	POKY		X		45 60			
Range site number		013XT026NV	021XT028NV	023XT029NV	021XT027NV	021XT065NV	021XT007NV	021XT019NV
Potential production lb/acre)								
Favorable years		1400	600	700	800	2600	1600	2200
Normal years		1100	400	500	500	1700	1200	1800
Unfavorable years		600	250	300	100	1400	900	1500

1158- BADGERCAMP-HACKWOOD ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants in major soils and inclusions)				
		Soil name or inclusion number				
		BADGERCAMP	HACKWOOD	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	FEID	10-20	X	30-40	10-20	-
Navaho bluegrass	POHE1		X		2-5	
Thurber needlegrass	STHE1	--	--	2-8		5-10
basin wildrye	ELCT2			5-10	-	2-10
big squirreltail	STJD		X	---		
bluebunch wheatgrass	AGSP	5-15		25-40	-	60-70
bluegrass	POA++	2-5		2-5	---	
halic	HELIC	-	X			--
mountain brome	BRCA5	2-5	X		10-20	--
needlegrass	STIPA	5-15	--	-	10-20	
purple orchardgrass	HESP				2-5	-
slender wheatgrass	AGTR	---	X	-	2-5	-
sandowry	TRAM12		X			
antelope bitterbrush	POTR2	---	-	2-10	2-5	2-5
curlleaf mountainmahogany	CKLE1	25-40				-
mountain big sagebrush	ARVA2	5-10	X	10-20		10-20
snowberry	STMEK	2-5	X		2-5	
quaking aspen	POTET		X			-
Range site number		023XY026MV	023XY028MV	023XY007MV	023XY061MV	023XY016MV
Potential production (lb/acre)						
Favorable years		1400	600	1400	2600	1500
Normal years		1100	400	1200	1800	1100
Unfavorable years		600	250	900	1400	800

1140--WELCH CLAY LOAM, 0 TO 4 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name or inclusion number--		
		WELCH	Inclusion 1	Inclusion 2
Nevada bluegrass	POWE1	-	40 50	2-10
basin wildrye	WLC12	-	---	40 40
bluegrass	POA++	10-20	---	---
meadow barley	BOMR1	8 10	-	---
rush	JUNC1	5-10	---	---
sedge	CARE1	5-10	5-15	---
tufted hairgrass	DRCE	10-50	---	---
western wheatgrass	AGRW	-	-	2-10
povertyweed	LYAL	---	---	2-5
thalypody	TEMLY	---	-	2 2
basin big sagebrush	ARTXF	---	---	5-15
Range site number		023XY025WV	023XY013WV	023XY005WV
Potential production (lb/acre)				
Favorable years		4000	2200	3000
Normal years		3000	1700	2000
Unfavorable years		2000	1500	1500

1361--NETVUT ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number--				
		NETVIT	NETVIT	Inclusion 1	Inclusion 2	Inclusion 3
Baltic rush	JURA	2-8	--	---	--	
Lowmo alkaligrass	MULE	---	---	---	2-8	20-35
Nevada bluegrass	POME3	40-60	40-50	2-10	10-20	60-80
basin wildrye	ELCT2	2-8		40-60	50-60	2-8
inland saltgrass	UISFS2		--		2-8	5-20
meadow barley	SCOR2	2-8	--	---	--	---
sedge	CARKE	10-20	5-15			---
western wheatgrass	ACSN	--	---	2-10	---	
other perennial forbs	FFFP	---			--	10-20
povertyweed	IVAK	--		2-5	--	--
thelypody	TERLY		--	1-5		
basin big sagebrush	AKT27	---		5-15	---	---
black greasewood	SAVE4	---			5-10	
other shrubs	SSSE	---		--	--	0-5
threadleaf rubber rabbitbrush	CHMAC2				2-8	--
Range site number		023XY009NV	023XY013NV	023XY005NV	023XY010NV	023XY002NV
Potential production lb/acre:						
Favorable years		4000	2200	3000	2200	1300
Normal years		3000	1700	2000	1700	1000
Unfavorable years		2000	1300	1300	1000	700

1165 RUBBLE LAND DOSE ASSOCIATION

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable.
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or inclusion number--					
		RUBBLE LAND	DOSE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cunby bluegrass	POCA		-	2-5		---	---
Idaho fescue	FEID				X	10-40	X
Nevada bluegrass	PONE		-		X	---	X
Sandberg bluegrass	POSE				X		
Thurber needlegrass	STTB	-	5-10	2-5	X	2-4	
basin wildrye	ELCI		2-10	10-20	X	5-10	-
big squirreltail	SIJU	-	-			---	X
bluebunch wheatgrass	AGSF		60-70	20-40	X	25-40	-
bluegrass	POA++	-	---	-		2-5	-
belic	ELIC		-	---	-		X
mountain brome	BRCA				-	---	X
slender wheatgrass	AGTR					-	X
beafover	TRAL					---	X
antelope bitterbrush	PUTR		2-8	2-10		2-10	
mountain big sagebrush	ARVA		10-20	5-15	X	10-20	X
sagebrush	SYME		-			---	X
quaking aspen	POTR						X
Range site number		none	023XT016W	023XT041W	023XT024W	023XT007W	023XT028W
Potential production (lb/acre)							
Favorable years			1500	1400	700	1600	600
Normal years			1100	1200	500	1200	400
Unfavorable years			800	900	300	900	250

1366--DODIE VERY STONY LOAM, 15 TO 50 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclussions				
		Soil name or inclusion number				
		DODIE	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA	-	2-5		2-5	---
Idaho fescue	FEID	-	---	30-40		5-20
Thurber needlegrass	STIN	5-10	2-5	2-8	15-20	5-10
basin wildrye	ELCI2	2-10	10-20	5-10	5-10	5-10
bluebunch wheatgrass	AGSF	60-70	20-40	25-40	30-40	25-35
bluegrass	POCA+			2-5		-
antelope bitterbrush	WYTR2	2-8	2-10	2-10	2-10	15-25
big sagebrush	ARTR2	-		-	15-25	
mountain big sagebrush	ARVA2	10-20	5-15	10-20		5-15
Range site number		023XY016NV	023XY041NV	023XY007NV	023XY020NV	023XY015NV
Potential production (lb./acre)						
Favorable years		1500	1400	1600	1100	1300
Normal years		1100	1200	1200	900	1200
Unfavorable years		800	800	900	600	900

1347--POOSE-FIDDLER-RUSSEL LAND ASSOCIATION

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Percentage composition and production (dry weight) of plants on major soils and inclusions								
Common plant name	Plant symbol	Soil name or Inclusion number						
		POOSE	FIDDLER	RUSSEL LAND	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Idaho fescue	PRID	-	X	---	---	---	10-40	5-20
Nevada bluegrass	POHE1	---	X	---	---	---	---	---
Sandberg bluegrass	POSE	---	X	---	---	---	---	---
Thurber needlegrass	STNE2	8-10	X	---	10-25	10-20	2-8	8-10
basin wildrye	ELCI2	2-10	X	---	-	2-10	5-10	5-10
bluebunch wheatgrass	AGSF	40-60	X	---	10-50	40-60	25-40	25-35
bluegrass	POA++	-	-	---	5-10	---	2-5	-
Wyoming big sagebrush	ALTEW	-	---	---	---	10-20	---	---
antelope bitterbrush	POTE2	2-8	---	---	---	2-8	2-10	15-25
big sagebrush	ALTE2	-	---	---	-	15-25	-	---
low sagebrush	ARAR2	---	---	---	10-20	---	---	---
mountain big sagebrush	ATVA2	10-20	X	---	---	10-20	10-20	5-15
Range site number		023XY015HV	023XY024HV	none	023XY031HV	023XY039HV	023XY007HV	023XY015HV
Potential production (lb./acre):								
Favorable years		1500	700		900	900	1600	1500
Normal years		1100	500		700	700	1200	1200
Unfavorable years		800	300		500	500	900	900

1375 COTANT-MADELINE ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight of plants on major soils and inclusions)			
		Soil name or inclusion number			
		COTANT	MADELINE	Inclusion 1	Inclusion 2
Idaho fescue	FEID	10-50	5-20	10-50	10-20
Nevada bluegrass	POHE	-	-	-	2-5
Thurber needlegrass	STHE	2-8	5-10	2-8	-
basin wildrye	BLC12	-	5-10	-	-
bluebunch wheatgrass	AGSP	10-10	25-35	15-30	-
bluegrass	POA11	2-8	-	2-8	-
mountain brome	BRCA5	-	-	-	10-20
needlegrass	STPA	-	-	-	10-20
purple oniongrass	HEJP	-	-	-	2-5
slender wheatgrass	LOTR	-	-	-	2-8
antelope bitterbrush	PUT2	-	15-25	-	2-5
low sagebrush	BRAR5	10-20	-	10-20	-
mountain big sagebrush	BRVA2	-	5-15	-	-
snowberry	SYMPH	-	-	-	2-8
Range site number		021XY017MV	023XY015MV	021XY017MV	023XY045MV
Potential production (lb./acre):					
Favorable years		900	1500	900	2600
Normal years		700	1200	700	1800
Unfavorable years		500	900	500	1400

1380 WEINER-BOULDER LAKE ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Percentage composition and production (dry weight of plants on major soils and inclusions)					
Common plant name	Plant symbol	Soil name or Inclusion number			
		WEINER	BOULDER LAKE	Inclusion 1	Inclusion 2
Cosack bluegrass	POCU1	---	---		20-30
Nevada bluegrass	POHE1		18 28	40-50	2 8
Thurber needlegrass	STNE2	---			25-35
basin wildrye	ELCH2				5-18
creeping wildrye	ELTA3	---	5-15		---
mat subsp	MURE1	8-10	5-10		
sedge	CASEX	---	---	5-15	--
dock	RUMEX	1-2			
eveningprimrose	GENOT	2-5	---		--
lupine	LUPIN				2 8
povertyweed	IVALE	5-10	-		--
early sagebrush	ARLO9				18 28
rubber rabbitbrush	CHRA1	-	2-5		--
silver sagebrush	ARCAL		20-40		
Range site number		021XY021EV	021XY001EV	023XY013EV	023XY000EV
Potential production (lb. acre)					
Favorable years		1800	1800	2200	900
Normal years		400	1400	1700	700
Unfavorable years		0	100	1300	450

1981--FERROPOINT VERY GRAVELLY SANDY LOAM, 1 TO 30 PERCENT SLOPES

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of plants on major soils and inclussions				
Common plant name	Plant symbol	Soil name or Inclussion number		
		FERROPOINT	Inclussion 1	Inclussion 2
Canby bluegrass	POCA	2-5	-	2-5
Indian ricegrass	ORRY	-	15-25	---
Sandberg bluegrass	POSE	-	-	2-5
Thurber needlegrass	STW2	15-20	-	20-40
Webber needlegrass	STW5	-	-	2-8
basin wildrye	KLC12	5-10	2-8	5-10
bluebunch wheatgrass	AGSP	30-40	-	30-40
bottlebrush squirreltail	SIBY	---	-	2-5
needleandthread	STCO4	-	20-40	---
thickspike wheatgrass	AGDA	-	2-5	-
Wyoming big sagebrush	ARTW	-	-	20-30
antelope bitterbrush	PUTR2	2-10	---	2-10
big sagebrush	ARTR2	15-25	10-20	15-25
spiny hopsgage	GRSP	---	2-5	---
Range site number		023XY020NV	023XY081NV	023XY086NV
Potential production, lb acre				
Favorable years		1100	900	1100
Normal years		900	700	900
Unfavorable years		600	500	600

1191 ORR-FERNPOINT ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number				
		ORR	FERNPOINT	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCH	2-5	2-5	2-5	2-5	---
Nevada bluegrass	POHE3					1-10
Thurber needlegrass	STTH2	15-20	15-20	15-20	15-20	---
basin wildrye	SLCIR	5-10	5-10	5-10	5-10	40-60
bluebonnet wheatgrass	AGSP	30-40	30-40	30-40	30-40	---
western wheatgrass	AGSK	---	---	---	---	2-10
povertyweed	LYAL	---	---	---	---	2-5
thelepody	TRFLY	---	---	---	---	1-3
antelope bitterbrush	FUTE2	2-10	2-10	2-10	2-10	---
basin big sagebrush	AKTWT	---	---	---	---	5-15
big sagebrush	AKTW2	15-25	15-25	15-25	15-25	---
Range site number		023XY020NV	023XY020NV	023XY020NV	023XY020NV	023XY020NV
Potential production (lb/acre):						
Favorable years		1100	1100	1100	1100	3000
Normal years		900	900	900	900	2000
Unfavorable years		600	600	600	600	1800

1400 BOMBADIL-CHEJAY ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Percentage composition and production dry weight, of plants on major soils and inclusions							
Common plant name	Plant symbol	Soil name or Inclusion number					
		BOMBADIL	CHEJAY	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	GRNY	5-15	---	5-15	--	---	---
Sandberg bluegrass	POSE	2-5	---	2-5	--	---	---
Thurber needlegrass	STNE2	20-40	---	20-40	10-20	--	---
Webber needlegrass	STNE	2-6	5-15	2-6	---	4-15	---
Desert wildrye	ELC12	---	---	---	2-10	---	---
bluebunch wheatgrass	ACSP	--	---	--	40-60	---	--
Bottlebrush squarreltail	PIRY	2-5	---	2-5	--	2-5	--
Douglas rabbitbrush	CHY10	---	2-5	---	--	2-5	---
Wyoming big sagebrush	ARV10	20-30	---	20-30	10-20	---	--
Antelope bitterbrush	PUT10	---	---	---	2-5	---	---
big sagebrush	ARV12	---	---	---	18-25	--	---
mountain big sagebrush	ARV12	---	---	---	10-20	---	---
spiny hopeweed	GRSP	2-5	---	2-5	---	---	--
Range site number		023XY008NV	023XY009NV	023XY006NV	023XY003NV	023XY001NV	none
Potential production (lb./acre)							
Favorable years		800	500	800	900	400	
Normal years		600	450	600	700	450	
Unfavorable years		400	300	400	500	300	

1410--FULTON- SARAH-TUFFO ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of plants on major soils and inclusions						
Common plant name	Plant symbol	Soil name or inclusion number--				
		FULTON	SARAH	TUFFO	Inclusion 1	Inclusion 2
Indian ricegrass	ORRY		5-15	15-30	---	5-15
Sandberg bluegrass	POSE		2-5		---	2-5
Thurber needlegrass	STNE2		30-40		5-15	20-40
Wahler needlegrass	STNE	5-15	2-8		---	2-8
basin wildrye	ELC12	---		2-8	30-40	---
bluegrass	POA++			---	30-40	---
bottlebrush squizzealtail	SIHT	---	2-5	5-10		2-5
lupine	LOVIN			---	2-5	---
Douglas rabbitbrush	CHVIN	2-5	---		---	2-5
Wyoming big sagebrush	ARTW		20-30	10-40	---	20-30
antelope bitterbrush	PUTR2	---	---	2-10		---
big sagebrush	ART2			---	15-25	---
spiny hopsage	GRIP	---	2-5	2-10		2-5
winterfat	SULAS			2-10	---	---
Range site number		021KY041MV	021KY004MV	021KY048MV	021KY042MV	021KY004MV
Potential production (lb acre)						
Favorable years		600	800	350	1100	800
Normal years		450	600	200	800	450
Unfavorable years		300	400	100	500	300

1412 FULSTONE-HELLSPRING-MURFAN ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name or inclusion number--					
		FULSTONE	HELLSPRING	MURFAN	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	GRY	-	2-8	3-15	-	-	-
Sandberg bluegrass	POB	-	2-8	2-5	-	-	3-10
Thurber needlegrass	STW	-	15-30	20-40	30-40	-	-
Wabber needlegrass	STW	3-15	-	2-8	5-15	3-10	-
bluebunch wheatgrass	AGS	-	-	-	2-8	-	-
bluegrass	POB	-	-	-	5-10	-	-
bottlebrush squirreltail	STW	-	2-5	2-8	-	-	10-20
desert needlegrass	STW	-	2-10	-	-	-	-
erigeron	ERIG	-	-	-	-	-	1-5
lupine	LUP	-	-	-	-	-	1-3
Douglas rabbitbrush	CHV	2-5	-	-	2-5	2-5	-
Lebanon sagebrush	ARAB	-	10-45	-	-	-	-
Wyoming big sagebrush	ART	-	-	10-10	-	-	-
sphedra	SPH	-	2-8	-	-	-	-
low sagebrush	ARAB	-	-	-	10-10	-	2-10
rubber rabbitbrush	CHV	-	-	-	-	-	10-50
shadscale	XTD	-	2-8	-	-	-	-
spiny hoppage	GRY	-	2-5	2-5	-	-	-
Range site number		023XY093MV	023XY047MV	023XY006MV	023XY059MV	023XY081MV	023XY001MV
Potential production (lb/acre):							
Favorable years		500	500	500	500	500	350
Normal years		450	350	400	450	450	275
Unfavorable years		300	200	400	300	300	150

1420 SANDROCK VERY GRAVELLY LOAM, 2 TO 15 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number				
		SANDROCK	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Indian ricegrass	ORYZ	5-15	5-15		--	15-30
Sandberg bluegrass	POSB	2-8	2-5		--	--
Thurber needlegrass	STNE	10-40	10-40	5-15	--	--
Wabber needlegrass	STNE	2-8	2-8		5-15	--
Basin wildrye	ELC12	--		30-40		2-8
bluegrass	POA++	--	--	30-40		--
bottlebrush squirreltail	SIFY	2-5	2-5	--		5-10
lupine	LUP10	--	--	2-5	--	--
Douglas rabbitbrush	CEV13	--			2-5	--
Wyoming big sagebrush	ARTW	20-30	20-10	--	--	30-40
antelope bitterbrush	POTR2	--	--		--	1-10
big sagebrush	ART2			15-25	--	--
spiny hopsage	GRSE	2-5	2-5	--	--	2-10
winterfat	EULAS	--	--		--	1-10
Range site number		021XY006MV	021XX006MV	021XY006MV	021XY006MV	021XY006MV
Potential production (lb/acre)						
Favorable years		600	600	1100	600	350
Normal years		600	600	800	650	200
Unfavorable years		600	400	600	100	100

1430--GRASSYCAN ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or inclusion number				
		GRASSYCAN	GRASSYCAN	Inclusion 1	Inclusion 2	Inclusion 3
Indian ricegrass	ORRY	---			5-25	---
Sandberg bluegrass	POBK	-	30-45	---	2-5	
Thurber needlegrass	STWZ	30-40			20-40	10-25
Wabber needlegrass	STWE	5-15	2-5	5-15	2-8	
bluehunch wheatgrass	AGSP	2-8		--		20-50
bluegrass	POK++	5-10	-			5-10
bottlebrush squirreltail	SIFY		---		2-5	
Douglas rabbitbrush	CHVIB	2-5		2-5		---
Wyoming big sagebrush	ARXW		---		20-30	
low sagebrush	ALARS	20-30	30-45			10-20
spiny hopeweed	ORSP	-	--	---	2-5	---
Range site number		021XT01PMV	023XT01LMV	023XT033RV	021XT006MV	021XT01LMV
Potential production (lb/acre)						none
Favorable years		600	100	600	800	900
Normal years		400	200	450	600	700
Unfavorable years		300	150	300	400	500

1411- KNEED-FORLOW ASSOCIATION

Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of
plants on major soils and inclusions

Common plant name	Plant symbol	Soil name or inclusion number					
		ESKOD	POWLOW	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Canby bluegrass	POCA		2 5			2-5	---
Nevada bluegrass	POKE	---			40 50	---	---
Sandberg bluegrass	POSE	-			-		5-10
Thurber needlegrass	STIR	30-40	15 20	5-15	-	15-30	---
Wabbar needlegrass	STWE	5-15	-	---		---	---
Basin wildrye	ELCIS	---	5 10	10-40	-	5-10	---
bluethrush wheatgrass	AGSP	2 8	30-40			10-40	-
Bluegrass	POA++	5-10		10-40	-	---	---
bottlebrush squifrealtail	STRY	---	-	-	-		10-20
eddy	CARKE				5-15	---	---
ariogonum	BRIO	---	---	---	-	---	1-5
lupine	LUPIN			2 8		---	1-3
Douglas rabbitbrush	CHVIL	2 5	---	---	---	---	---
antelope bitterbrush	PUTE		2 10	-		2 10	-
big sagebrush	ARTS	-	15-25	15-35	-	15-35	---
low sagebrush	ABAS	20 10	---	---	---	---	2 10
rubber rabbitbrush	CHRA	-	---	---	-	---	30-50
Range site number		025Y069NV	025Y020NV	025Y082NV	025Y013NV	025Y020NV	025Y001NV
Potential production (lb/acre)							
Favorable years		600	1100	1100	2200	1100	350
Normal years		450	900	800	1700	900	225
Unfavorable years		100	400	400	1100	600	150

1440 TUSOUM-MARTIG ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

		Percentage composition and production (dry weight) of plants on major soils and inclusions					
Common plant name	Plant symbol	Soil name or inclusion number					
		TUSOUM	MARTIG	Inclusion 1	Inclusion 2	Inclusion 3	Inclusion 4
Cupick bluegrass	POC03	5-15	-	-	-	-	-
Idaho fescue	FSID	50-60	-	-	1 10	10 50	-
Nevada bluegrass	POWE3	-	-	-	-	-	2 8
Turber needlegrass	STIF1	-	5 10	-	5 10	1 0	-
basin wildrye	WLC12	2 5	2 10	-	5 10	-	65 75
bluebunch wheatgrass	AGSP	5-15	40 70	-	15 35	15 30	-
bluegrass	POA++	-	-	-	-	2 8	-
antelope bitterbrush	PUTR1	-	1 5	-	15 25	-	-
basin big sagebrush	ARTR1	-	-	-	-	-	5 10
low sagebrush	APARU	-	-	-	-	10 20	-
mountain big sagebrush	ARVA2	5 15	10-20	-	5 15	-	-
rubber rabbitbrush	CRMA2	-	-	-	-	-	1 2
snowberry	SYMFB	2 5	-	-	-	-	-
Range site number		023XY014MV	023XY016MV	none	023XY018MV	023XY017MV	023XY009MV
Potential production (lb/acre):							
Favorable years		1500	1800		1500	900	8500
Normal years		1200	1100		1200	700	4500
Unfavorable years		900	800		900	800	2500

1450--~~EMAGERT-NEVIT~~ ASSOCIATION

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of plants on major soils and inclusions						
Common plant name	Plant Symbol	Soil name or Inclusion number				
		EMAGERT	NEVIT	Inclusion 1	Inclusion 2	Inclusion 3
Baltic rush	JURA		2-8	---	---	---
Nevada bluegrass	PONE3	2-8	40-60	2-10	---	40-50
Thunder needlegrass	STW2	--	-	---	5-15	---
basin wildrye	BLCT2	65-75	2-8	40-60	30-40	-
bluegrass	PDA++	-	--	---	30-40	---
meadow barley	MOBA2	---	2-8			
sedge	CARKE		10-20	---	---	5-15
western wheatgrass	AGSM	---		2-10		
lupine	LUPIM		--	---	2-5	--
povertyweed	IVAN	---	--	2-6		
thalypody	THALY			2-3	-	---
basin big sagebrush	ARTST	5-10	-	5-15		
big sagebrush	ARTS2	---			15-25	
rubber rabbitbrush	CHEN2	1-3	---	---		-
Range site number						
		023XY009NV	023XY009NV	023XY009NV	023XY009NV	023XY011NV
Potential production (lb/acre):						
Favorable years		1100	4000	3000	1100	2200
Normal years		4500	1000	2000	800	1700
Unfavorable years		2500	2000	1300	500	1300

1440--MUDWATER LOAM, 0 TO 2 PERCENT SLOPES

Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name or inclusion number--			
		MUDWATER	Inclusion 1	Inclusion 2	Inclusion 3
Baltic rush	JURA	---	--		2-8
Nevada bluegrass	POWRA	2-10	2-8	---	40-60
Thurber needlegrass	STYRA	-		5-15	
basin wildrye	BLCRA	40-60	65-75	30-40	2-8
bluegrass	POARA	---		10-40	
meadow barley	HOBRA			---	2-8
sedge	CARXX		--		10-20
western wheatgrass	AGSN	2-10		---	---
lupine	LUPIN		---	2-5	
povertyweed	IVAX	2-5	---		--
thelypody	TRALY	1-3			---
basin big sagebrush	ARTAT	5-15	5-10	--	
big sagebrush	ARTAL			15-25	---
rubber rabbitbrush	CHRA3	-	1-3		
Range size number		023XT005HV	023XT008HV	023XT082HV	023XT089HV
Potential production (lb/acre):					
Favorable years		3000	3500	1100	4000
Normal years		2000	4500	800	3000
Unfavorable years		1300	2800	600	2000

1470 MINNEAPOLIS VERY COARSE LOAM, 1 TO 15 PERCENT SLOPES

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

Common plant name	Plant symbol	Percentage composition and production dry weight, of plants on major soils and incisions			
		Soil name or inclusion number			
		MINNEAPOLIS	Inclusion 1	Inclusion 2	Inclusion 3
Canby bluegrass	POCA			---	X
Canby bluegrass	POCUD				X
Idaho fescue	FEID	10-50		5-30	X
Thurber needlegrass	STNE	2-8	10-25	5-10	X
basin wildrye	WELC	--		5-10	
bluebunch wheatgrass	AGSP	15-30	10-30	25-35	X
bluegrass	POH++	2-8	5-10	---	---
western needlegrass	STOC				X
low sagebrush	ARAB	10-30	10-20	---	X
antelope bitterbrush	POTE			15-25	
low sagebrush	ARAB	10-30	10-20	--	X
mountain big sagebrush	ARV2		---	5-15	---
Range site number		021XY017MV	021XY031MV	021XY018MV	021XY055MV
Potential production (lb/acre)					
Favorable years		900	900	1200	600
Normal years		700	700	1200	400
Unfavorable years		500	500	900	200

9901--PLAYAS

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Percentage composition and production (dry weight) of plants on major soils and inclusions		
Common plant name	Plant symbol	Soil name or inclusion number
		PLAYAS

Range site number none

Potential production lb/acre)

Favorable years

Normal years

Unfavorable years

9902 ROCK OUTCROP-MUSKIE LAND COMPLEX 50 TO 75 PERCENT SLOPES

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable.
 Absence of an entry indicates that the named plant is not a key species in the potential native plant community.

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name or inclusion number--				
		ROCK OUTCROP	MUSKIE LAND	Inclusion 1	Inclusion 2	Inclusion 3
Idaho fescue	PRIN	-	---	X	X	---
Nevada bluegrass	POWE1	--	-	X	X	---
Sandberg bluegrass	POGE	---	---	---	X	---
Fourber needlegrass	STNE2	---	---	--	X	8-10
basin wildrye	ELCI2	--	---	--	X	2-10
big squirreltail	SINU	---	-	X	--	---
bluebunch wheatgrass	AGSP	---	---	--	X	60-70
belic	NEELIC	-	-	X	---	---
mountain bromes	BRCA1	-	---	X	---	---
slender wheatgrass	AGTA	---	---	X	---	---
sandbarne	TRAL12	---	-	X	--	---
antelope bitterbrush	PUTR2	---	-	---	-	2-3
Montana big sagebrush	ARVA2	---	-	X	X	10-20
snowberry	STNEW	--	---	X	---	-
quaking aspen	POTAT	---	-	X	---	---
Range site number		none	none	021XY020NV	021XY024NV	021XY016NV
Potential production (lb/acre):						
Favorable years				100	700	1500
Normal years				400	500	1100
Unfavorable years				160	100	800

W. WATER

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community.)

		Percentage composition and production (dry weight) of plants on major soils and inclussions
Common plant name	Plant symbol	Soil name or Inclussion number
		WATER
Range site number		code
Potential production ,lb/acre:		
Favorable years		
Normal years		
Unfavorable years		

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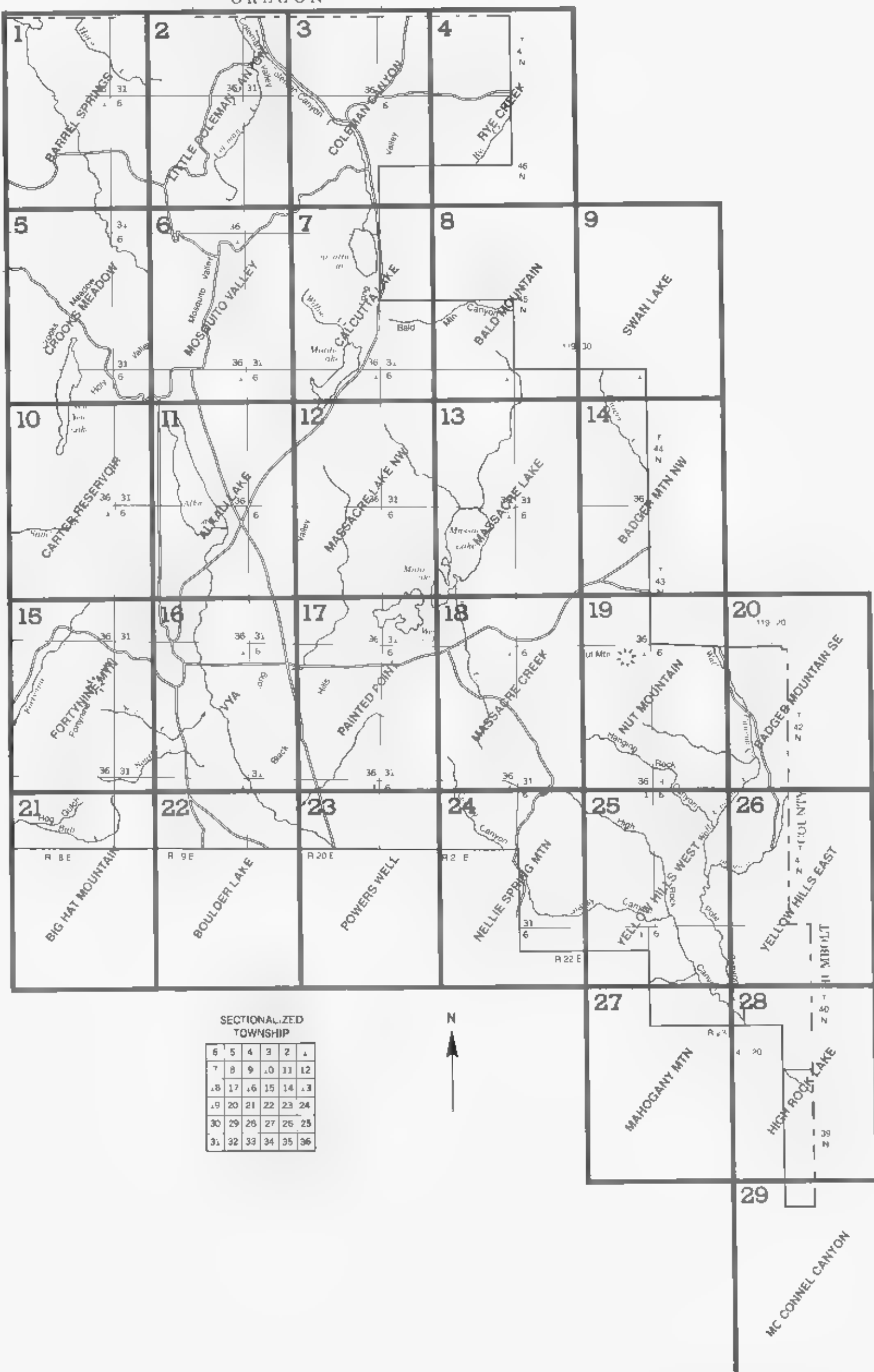
4 00

4 50

4 40

4 10

CALIFORNIA

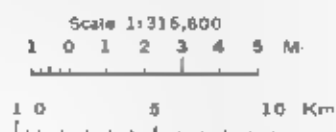


SECTIONALIZED
TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

INDEX TO MAP SHEETS

WASHOE COUNTY, NEVADA, NORTH PART



SOIL LEGEND

Map symbols consist of four digit numbers. The map symbols are not consecutive

SYMBOL	NAME
1010	Macyllai-Boulder Lake association
1011	Macyllai silt loam 0 to 2 percent slopes
1012	Macyllai-Indian Creek association
1015	Powder very gravelly loam 2 to 15 percent slopes
020	Bearbutte-Welch association
025	Mesman fine sandy loam 0 to 4 percent slopes
030	Zorralesia fine sand 4 to 15 percent slopes
035	Ninemile-Madeline-Crocan association
036	Tinpan-Ninemile association
1040	Langston gravelly sandy loam 2 to 8 percent slopes
04	Langston-Old Camp-Paypoint association
1045	Paypoint-Langston association
050	Skullwek silt loam 0 to 2 percent slopes
055	Devada-Haggood-Hart Camp association
060	Bombard-Chime association
061	Old Camp gravelly loam 8 to 30 percent slopes
062	Old Camp-Coral association
063	Old Camp very stony loam 8 to 30 percent slopes
065	Old Camp-Reynwal-Rubble land association
070	Orensia very gravelly loam 2 to 15 percent slopes
1075	Surprise gravelly loamy sand 2 to 15 percent slopes
1080	Bucklake Rock outcrop Coral association
108	Bucklake-Fiddler association
1083	Bucklake-Rubble land association
1090	Jaybee-verdugo association
1095	Coral-Mahala association
105	Freznk very stony loam 2 to 15 percent slopes
110	Indian Creek-Bullaran association
15	Loftus-Mesman complex 0 to 2 percent slopes
20	McConnel very stony sandy loam 2 to 8 percent slopes
12	McConnel gravelly fine sandy loam 2 to 8 percent slopes
25	Mahen-Jaybee-Tunnison association
30	Saughn-Rock outcrop complex 4 to 30 percent slopes
31	Saughn-Rock outcrop complex 30 to 50 percent slopes
115	McWatt-Old Camp association
140	Valmy very fine sandy loam 0 to 2 percent slopes
41	Valmy-Langston-Paypoint association
145	Wendane silt loam 0 to 2 percent slopes rarely flooded
150	Saraph-Hangrock-Tufto association
151	Saraph-Tufto Yellowwells association
155	Madeline-Ninemile complex 4 to 15 percent slopes
160	Wyo-Bucklake-Rock outcrop association
162	Devada-Niipac association
163	Devada-Desper complex 2 to 5 percent slopes
164	Devada-Ashcamp association
165	Devada-Hagpac-Bidrin association
66	Devada-Bieber association
67	Devada-Reynwal association
68	Devada extremely cobbly loam 4 to 15 percent slopes
170	Devada Bucklake association
171	Devada-Indian Creek association
172	Devada-Madeline-Ninemile association
173	Devada-Nepac-Uhaldi association
174	Devada-Uhaldi association
175	Fever-Tunnison association
180	Ninemile-Karlo association
18	Ninemile-Madeline-Tinpan association
182	Ninemile Westbutte complex 2 to 5 percent slopes
63	Ninemile Westbutte association 30 to 50 percent slopes
184	Ninemile-Tinpan association
185	Ninemile-Hart Camp association
186	Ninemile-Tinpan-Crocan association
187	Ninemile-Tinpan-Hart Camp association
188	Ninemile-Newlands-Har Camp association
189	Ninemile-Badgercamp-Crocan association
190	Fever-Niipac association
195	Bliner-Ashcamp association
205	Davey loamy fine sand 2 to 15 percent slopes
206	Davey-Coral association
210	Mazuma-Bighai association
215	Raglan-Isolde association

SYMBOL	NAME
220	Schamp very stony loam 4 to 15 percent slopes
221	Schamp very stony loam 30 to 50 percent slopes
1223	Schamp loam 4 to 5 percent slopes
230	Raglan-Mazuma association
1235	Chime gravelly loam 4 to 15 percent slopes
240	Toney-Millard-Hart Camp association
1245	Saraph-Uhaldi-Freznara association
250	Ashone-Ashdos-Bearbutte association
1251	Ashone-Ashdos-Ashira association
253	Ashdos-Ashne-Hackwood association
255	Newlands-Ninemile complex 4 to 15 percent slopes
256	Newlands-Mento association
257	Newlands-Haggood association
258	Newlands-Badgercamp-Hackwood association
265	Fazwater Westbutte association
270	Hartig gravelly loam 8 to 30 percent slopes
271	Hartig-Newlands association
272	Hartig-Rock outcrop association
1273	Hartig-Haggood association
1275	Hart Camp stony loam 8 to 30 percent slopes
1276	Hart Camp-Reynwal-Westbutte association
1277	Hart Camp-Ninemile association
1278	Boltz-Hart Camp association
1279	Hart Camp-Nutzen-Westbutte association
1285	Zymans-Indian Creek association
1286	Zymans-Cosini-Hart Camp association
1290	Haggood-Badgercamp-Hackwood association
295	Davey-Bizzard complex 2 to 15 percent slopes
1296	Bizzard very cobbly silty clay loam 0 to 5 percent slopes
305	Udrike-Mazuma association
306	Udrike-Longdis association
1310	Longdis-Udrike association
311	Longdis-Macyllai-Aene epiaquents association
312	Longdis-Dugway association
313	Longdis silt loam 0 to 2 percent slopes
320	Dugway fine sandy loam 0 to 2 percent slopes
321	Dugway-Udrike association
325	Reynwal-Devada-Hart Camp association
326	Reynwal very stony loam 8 to 30 percent slopes
327	Reynwal-Westbutte-Haggood association
328	Reynwal-Ferapoint association
329	Reynwal-Devada association
335	Westbutte-Rock outcrop association
336	Westbutte-Ashne-Tusune association
345	Layview-Haggood association
1346	Layview-Westbutte-Haggood association
1355	Badgercamp-Hackwood-East association 4 to 30 percent slopes
1356	Badgercamp-Hackwood-East association 30 to 70 percent slopes
1358	Badgercamp-Hackwood association
1360	Welch clay loam 0 to 4 percent slopes
1361	Welch association
1365	Rubble land-Dose association
1366	Dose very stony loam 15 to 50 percent slopes
367	Dose-Fiddler-Rubble land association
1375	Corian-Madeline association
1380	Werner-Boulder Lake association
1385	Ferapoint very gravelly sandy loam 8 to 30 percent slopes
395	Orr-Ferapoint association
400	Bombard-Carejay association
1410	Fulstone-Saraph-Tufto association
412	Fulstone-Hellspring-Bullaran association
420	Hangrock very gravelly loam 2 to 15 percent slopes
430	Grassycan association
431	Esmodi-Powlow association
440	Tusune-Hartig association
450	Emager-Wetvil association
460	Weezweed loam 0 to 2 percent slopes
1470	Ninemile very cobbly loam 2 to 5 percent slopes
930	Playas
9902	Rock outcrop-Rubble land complex 50 to 75 percent slopes
W	Water

CONVENTIONAL AND SPECIAL
SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

National state or province

County or parish

Reservation national forest or park state forest or park and large airport

Limit of soil survey (label) and/or denied access areas

Field sheet matchline and negative

ROAD EMBLEM & DESIGNATIONS

State

County farm or ranch

DAMS

Medium or Small (Named where applicable)

HYDROGRAPHIC FEATURES

Perennial

Intermittent

MISCELLANEOUS WATER FEATURES

Spring

SPECIAL SYMBOLS FOR
SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

LANDFORM FEATURES

EXCAVATIONS
PITS

MISCELLANEOUS SURFACE FEATURES

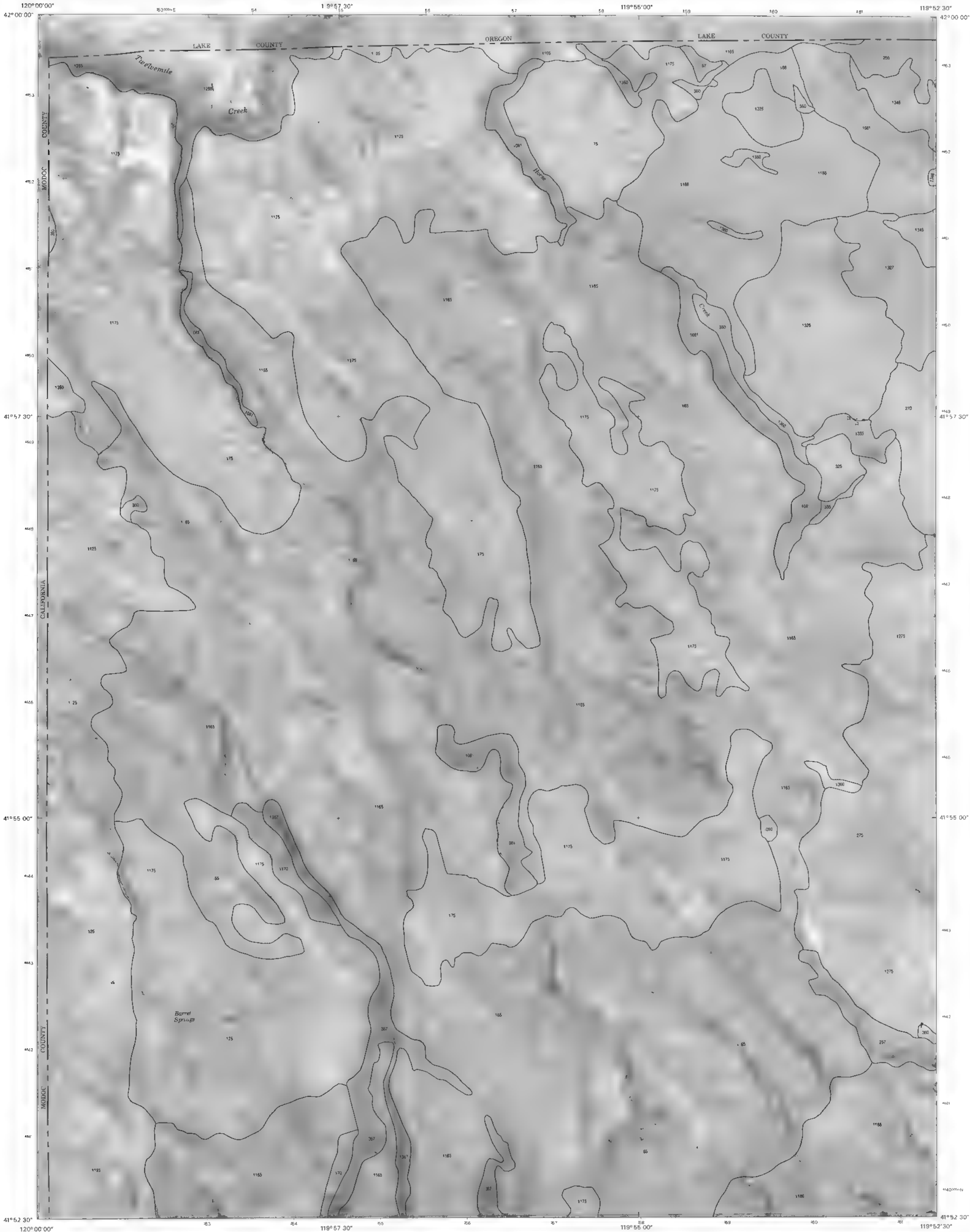
Rock outcrop (includes sandstone and shale)

Cumulative Cryaquolls (< 2 acres) quaking aspen woodland

Lithic Argixerolls (< 2 acres) curlear mountainmahogany savanna

Pachic Cryoborolls (< 2 acres) quaking aspen woodland

Pachic Xerembreps (< 2 acres) white fir woodland



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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 11
Coordinate grid ticks and division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

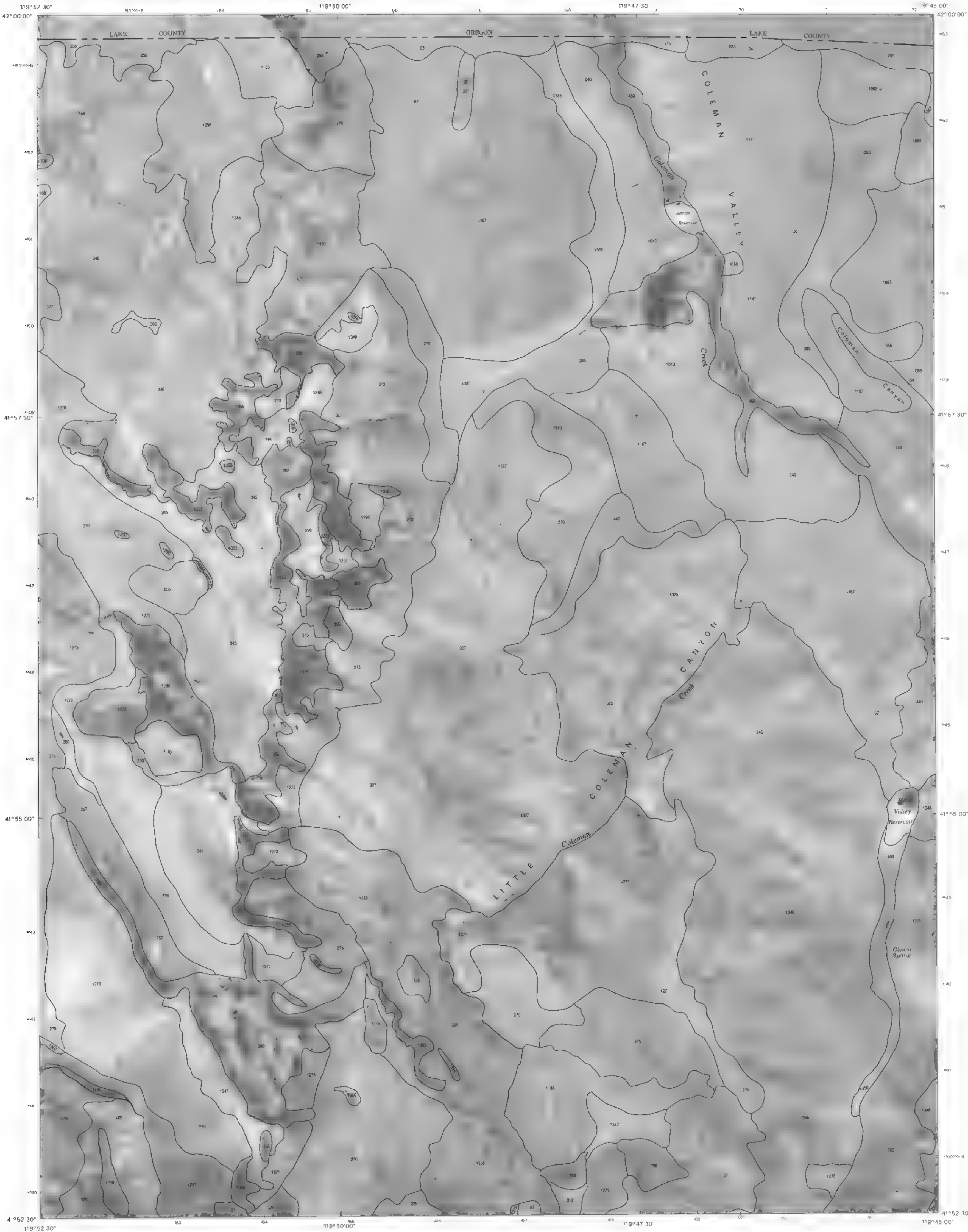


1	2	3	COLLINS RIM
4	5	6	MAY LAKE
7	8	9	COLEMAN LAKE
10	11	12	LAKE ANNIE
13	14	15	LITTLE COLEMAN CANYON
16	17	18	JACKSPUR HILLS
19	20	21	CROOKS MEADOW
22	23	24	MOSQUITO VALLEY

INDEX TO ADJOINING 7.5 MAPS

BARREL SPRINGS, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 29

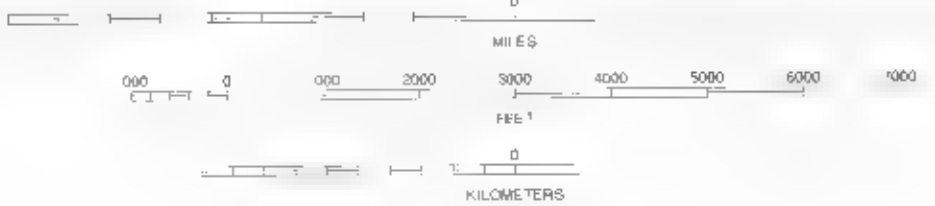
QUADRANGLE LOCATION



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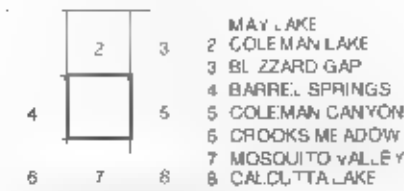
North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks, Universal Transverse Mercator zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

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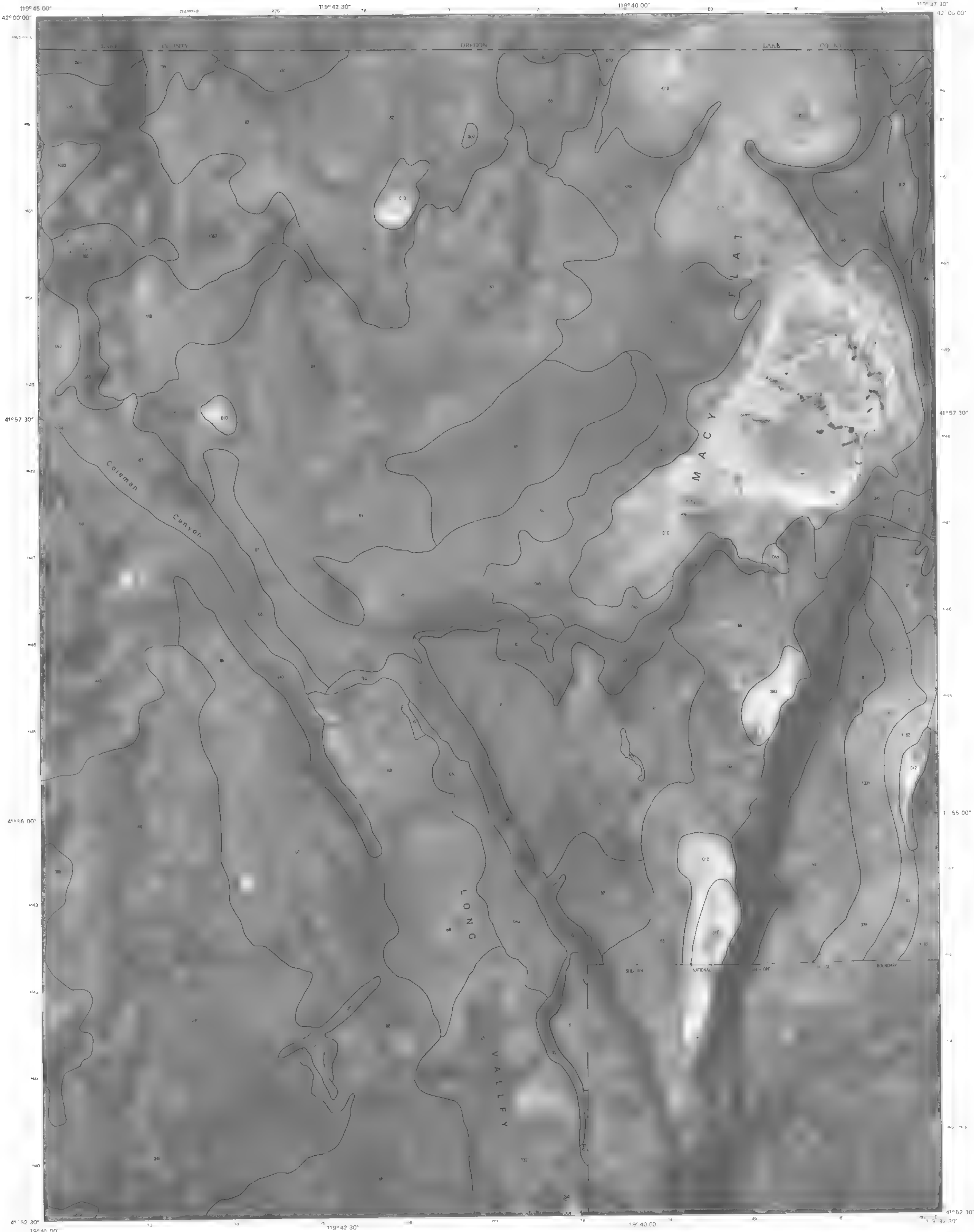


LITTLE COLEMAN CANYON, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 2 OF 29

QUADRANGLE LOCATION



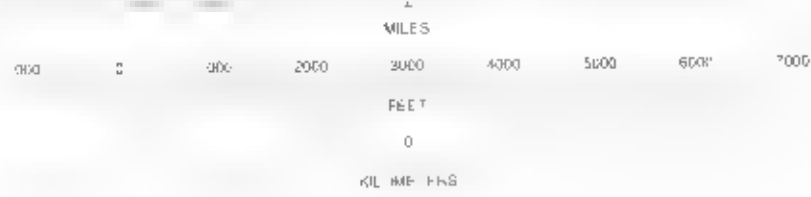
INDEX TO ADJOINING 7.5 MAPS



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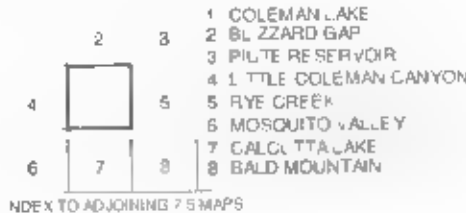
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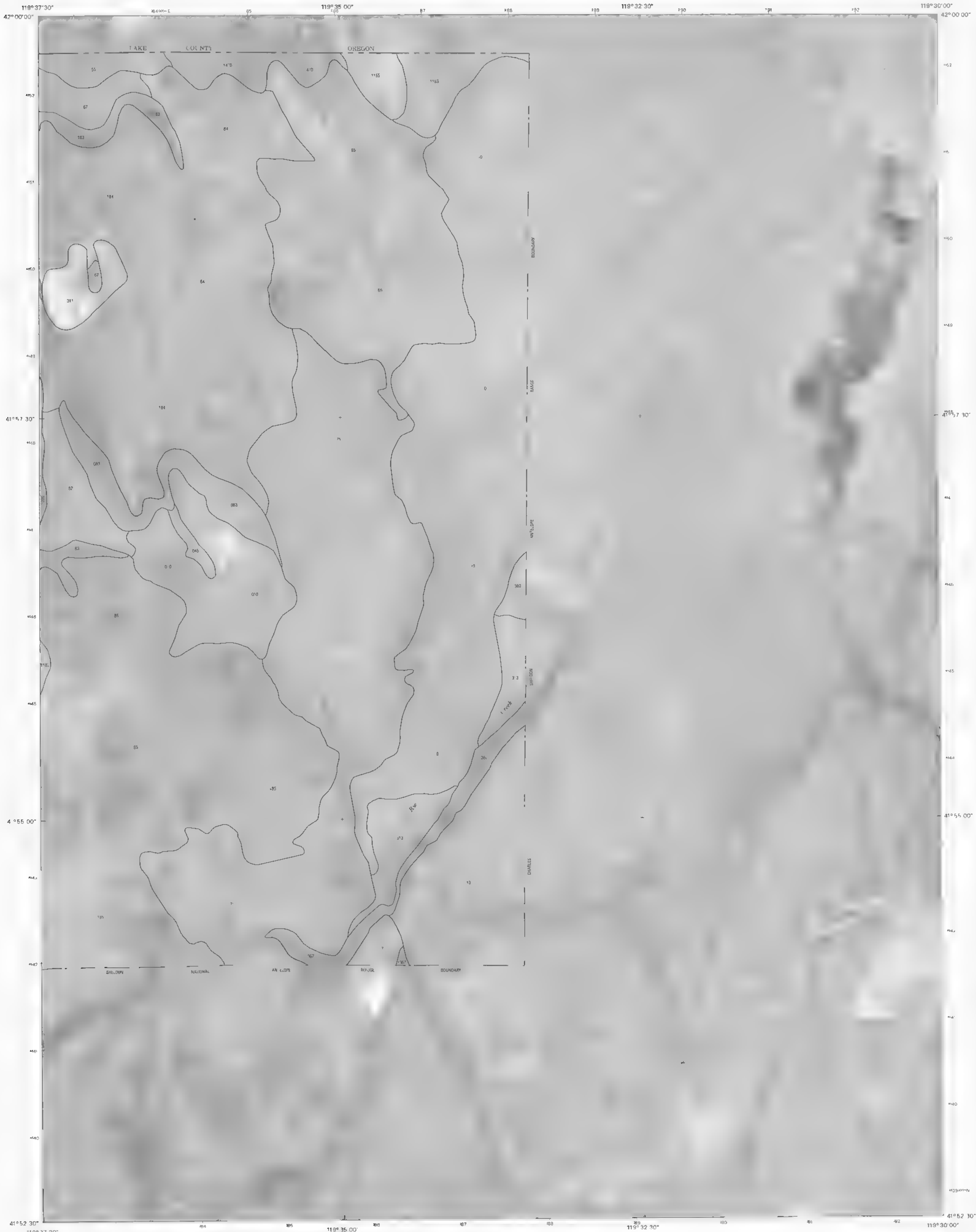
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COLEMAN CANYON, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 3 OF 29

QUADRANGLE LOCATION

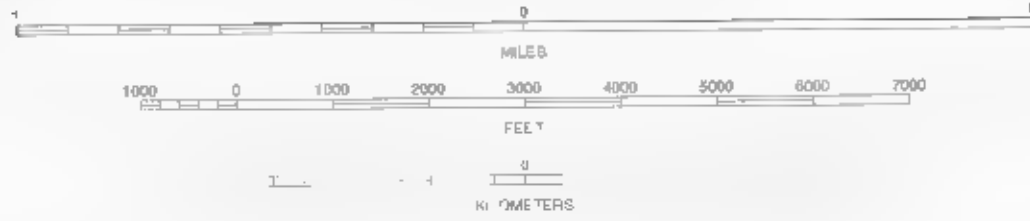




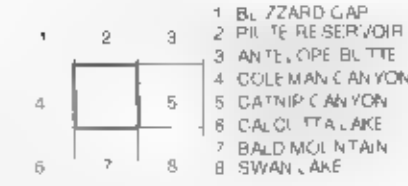
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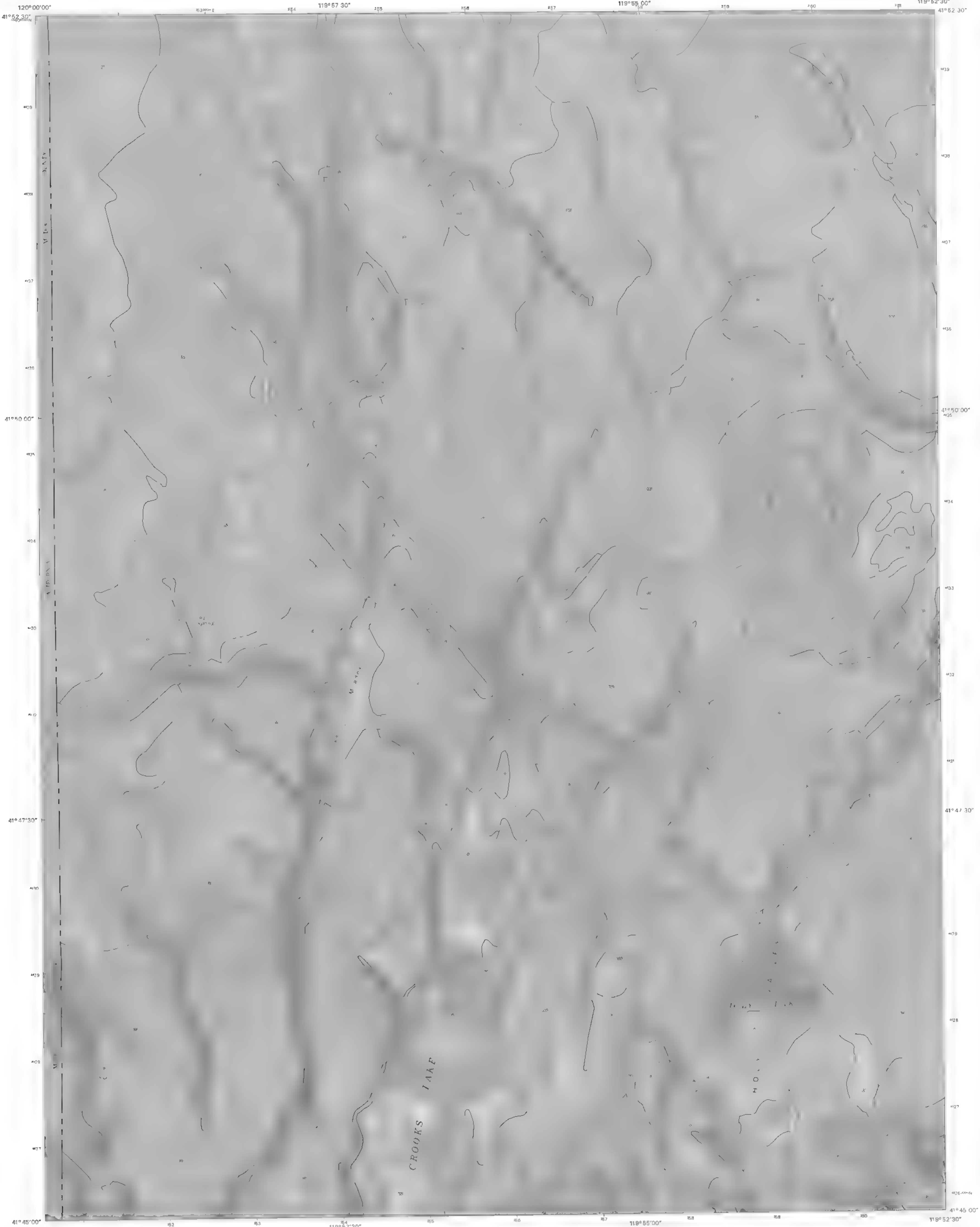


QUADRANGLE LOCATION



INDEX TO ADJOINING 7.5 MAPS

RYE CREEK, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 29



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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks, Universal Transverse Mercator zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

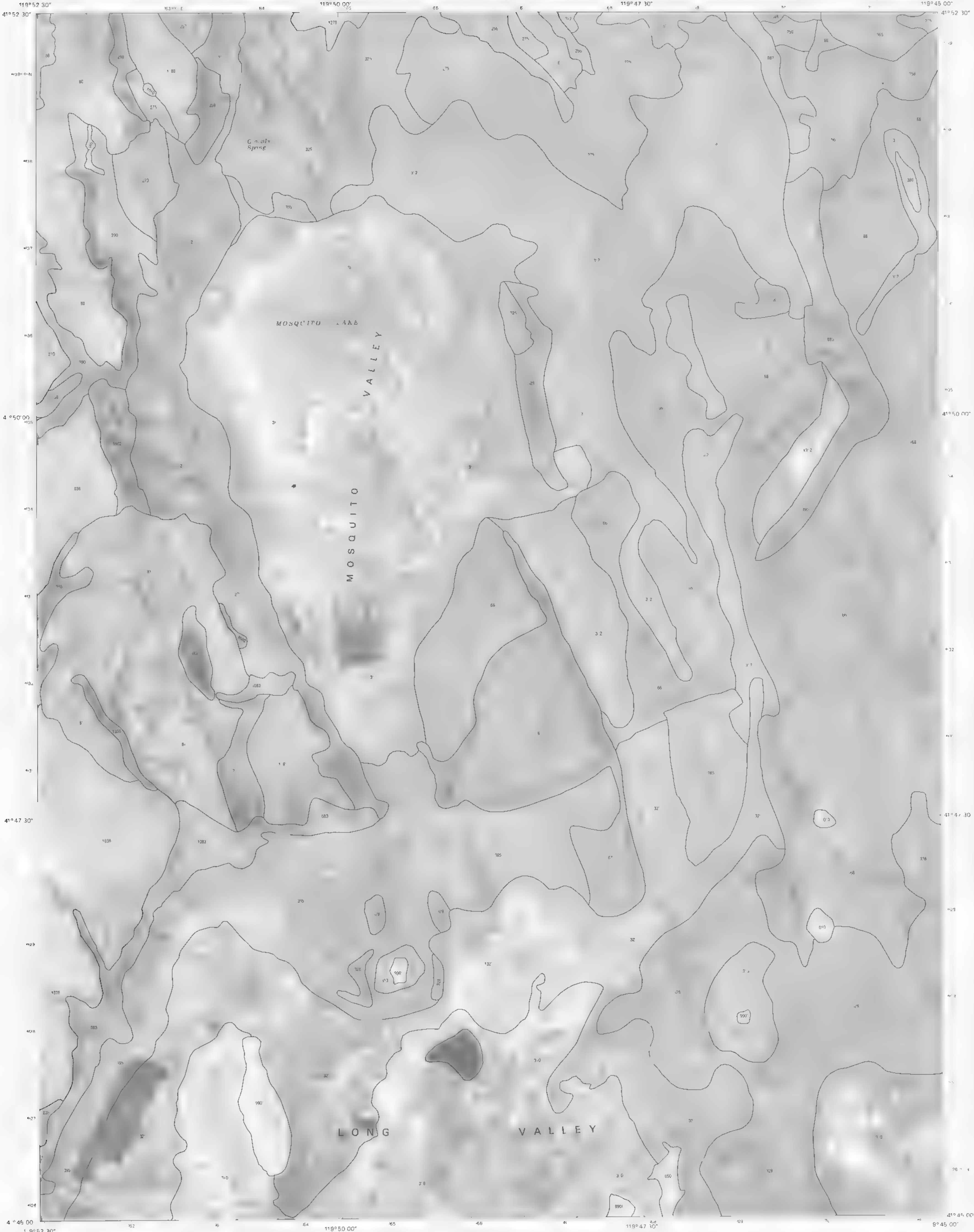


QUADRANGLE LOCATION

- | | | |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | 9 |
- 1 COLEMAN LAKE
 - 2 BLIZZARD GAP
 - 3 PLUTE RESERVOIR
 - 4 LITTLE COLEMAN CANYON
 - 5 RYE CREEK
 - 6 MOSQUITO VALLEY
 - 7 CALOITTA LAKE
 - 8 BALD MOUNTAIN

INDEX TO ADJOINING 7.5 MAPS

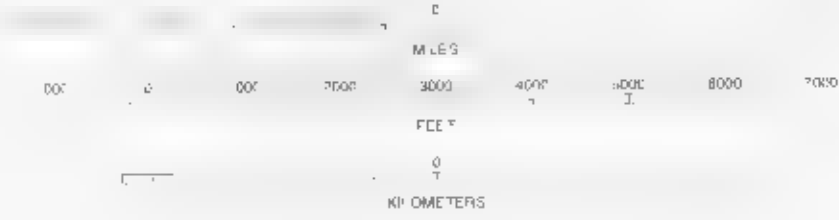
CROOKS MEADOW, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 5 OF 29



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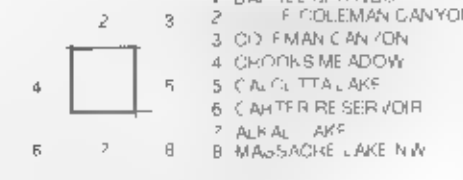
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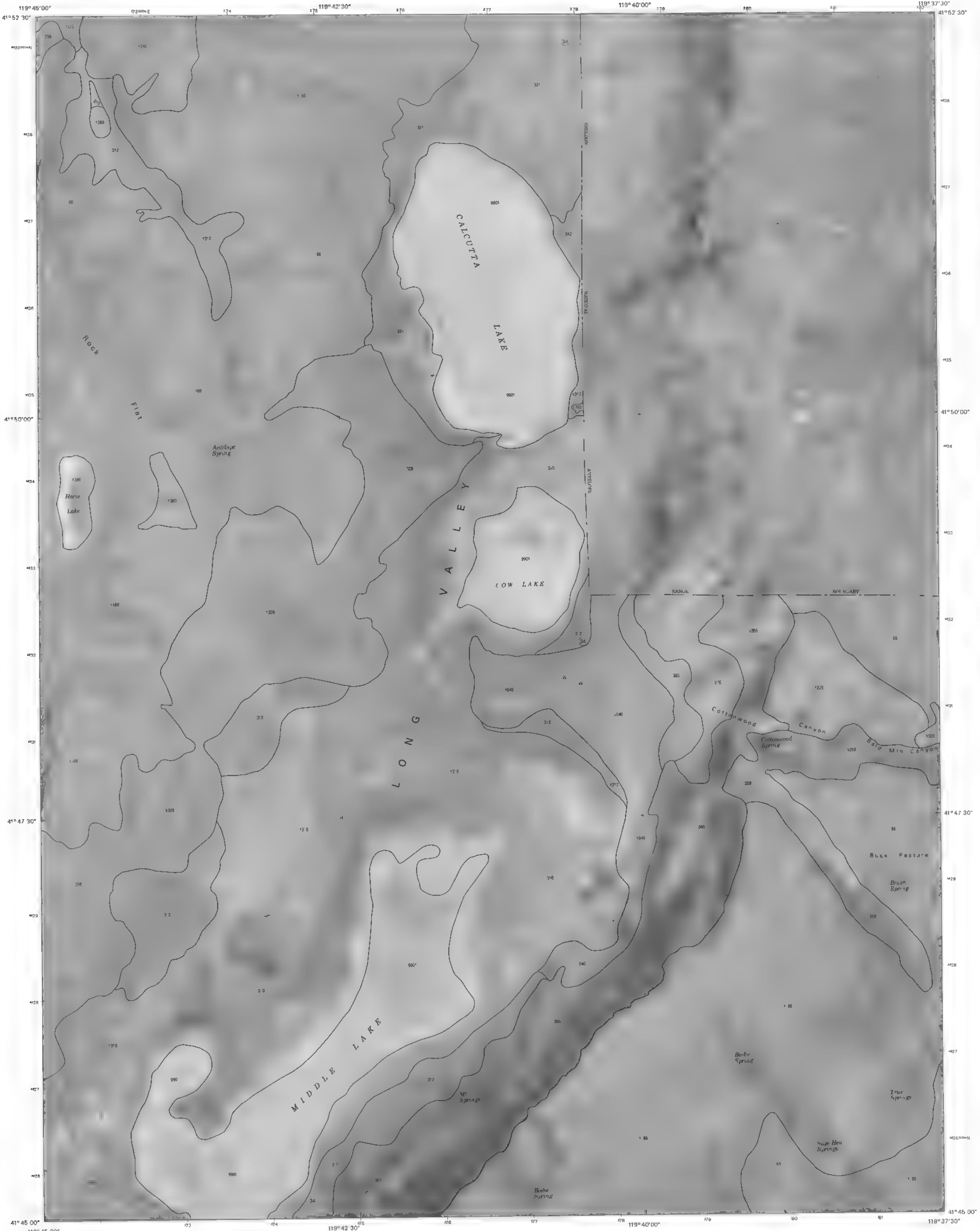
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MOSQUITO VALLEY, NEVADA
7.5 MINUTE SERIES 5
SHEET NUMBER 6 OF 29

QUADRANGLE LOCATION





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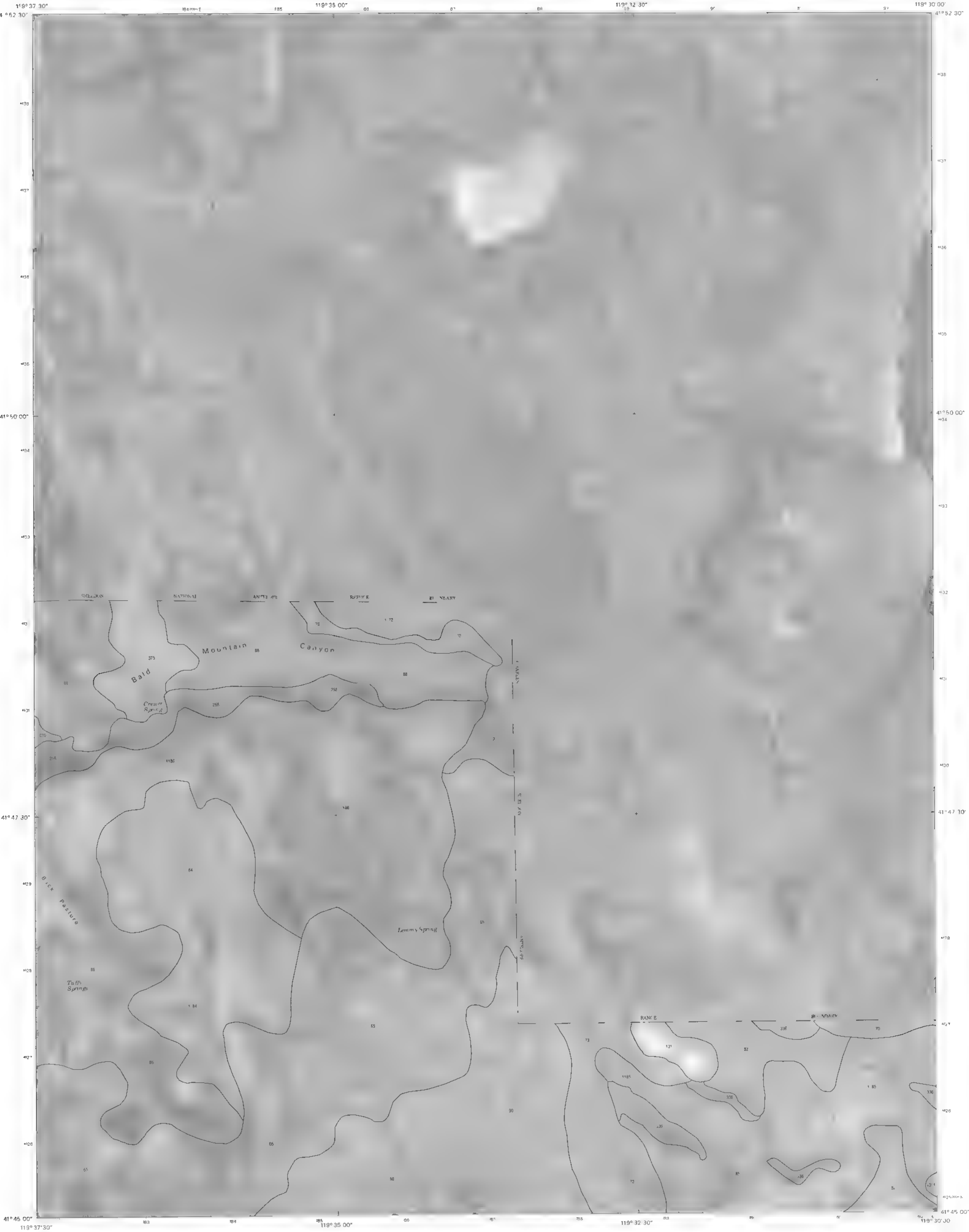


QUADRANGLE LOCATION

1	2	3	1. LITTLE COLEMAN CANYON
4	5	6	2. COLEMAN CANYON
7	8	9	3. RYE CREEK
10	11	12	4. MOSQUITO VALLEY
13	14	15	5. BALD MOUNTAIN
16	17	18	6. ALKALI LAKE
19	20	21	7. MASSACRE LAKE NW
22	23	24	8. MASSACRE LAKE

INDEX TO ADJOINING 7.5-MINUTE MAPS

CALCUTTA LAKE, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 7 OF 29



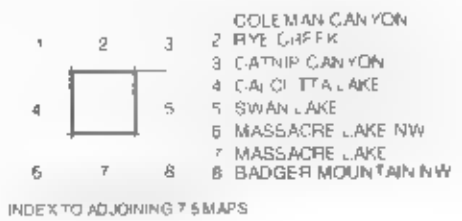
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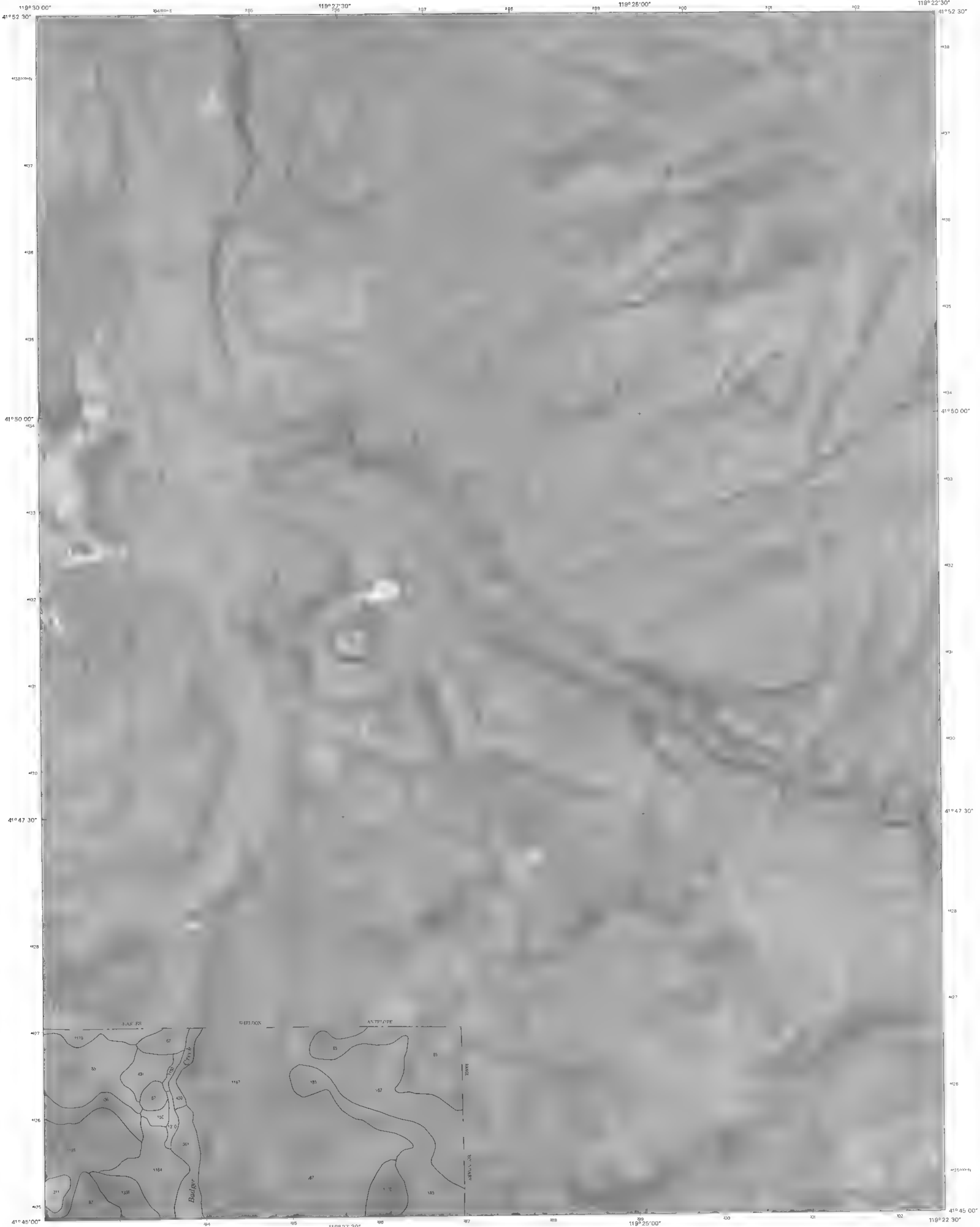
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1000-meter ticks: Universal Transverse Mercator zone 11
Coordinate grid ticks and grid section data, if shown, are approximately positioned. Digital data are available for this quadrangle.

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BALD MOUNTAIN, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 8 OF 29

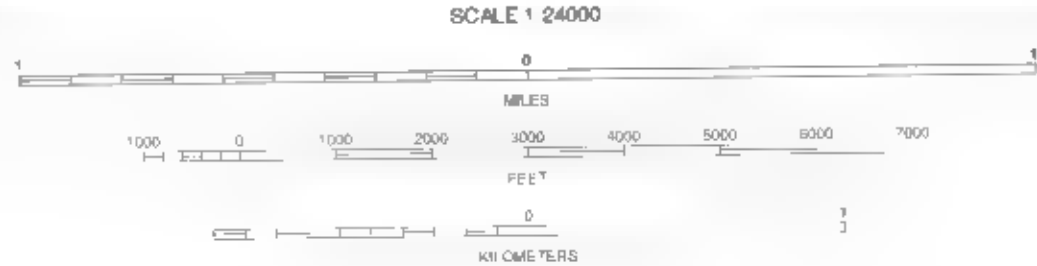




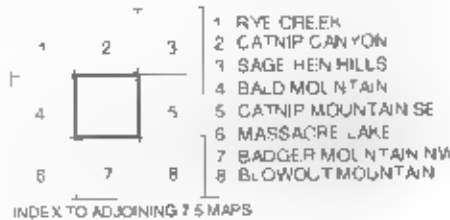
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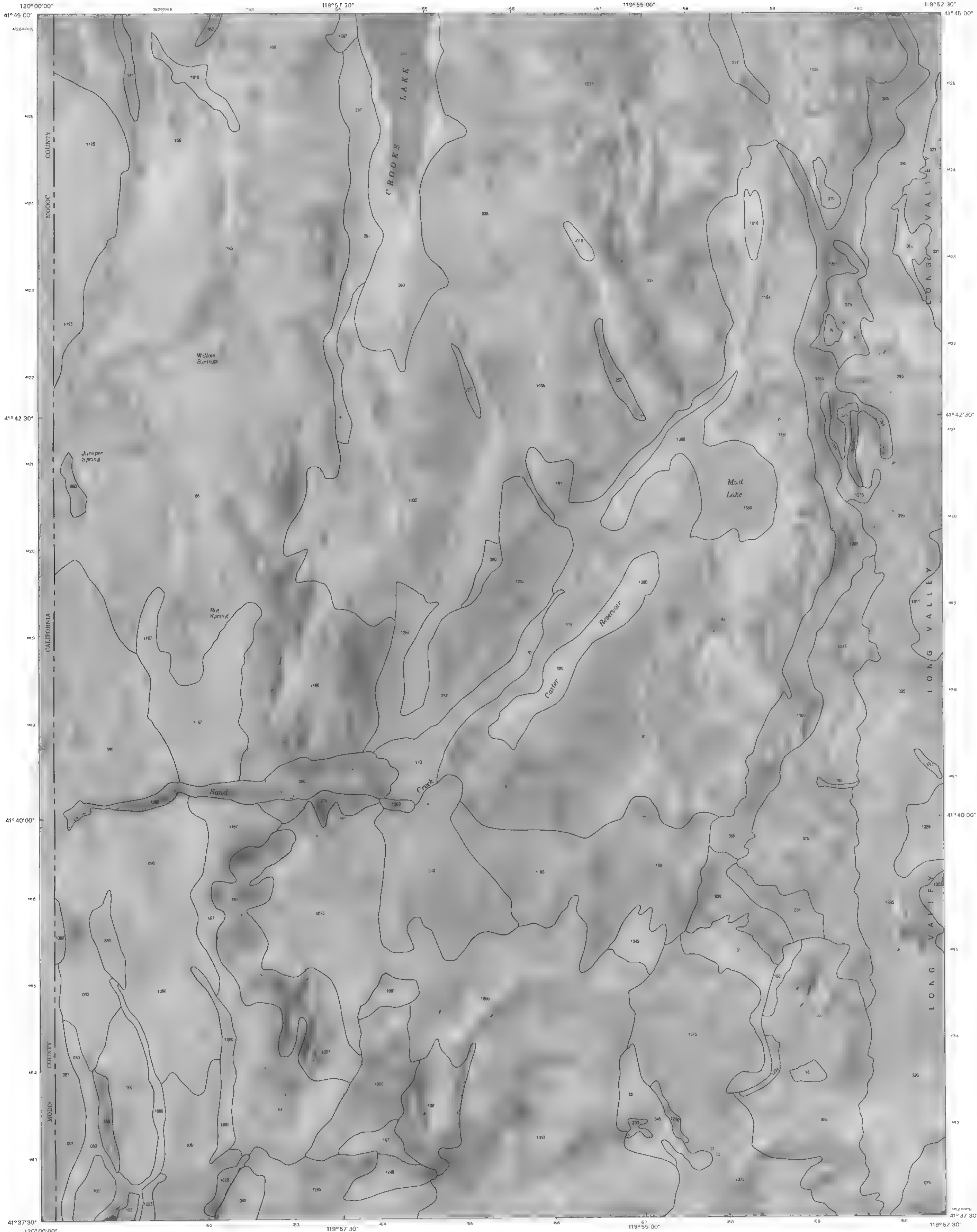
North American Datum of 1927 (NAD27), Clarke 1886 Spheroid 1000-meter ticks, Universal Transverse Mercator zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

North



SWAN LAKE, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 9 OF 29





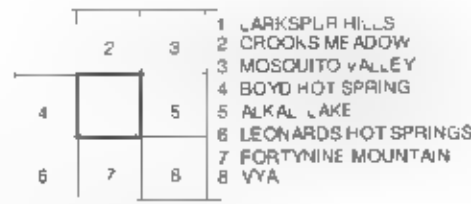
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North American Datum of 1927 (NAD27) Clarke 1866 Spheroid 1000-meter ticks, Universal Transverse Mercator zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:24000

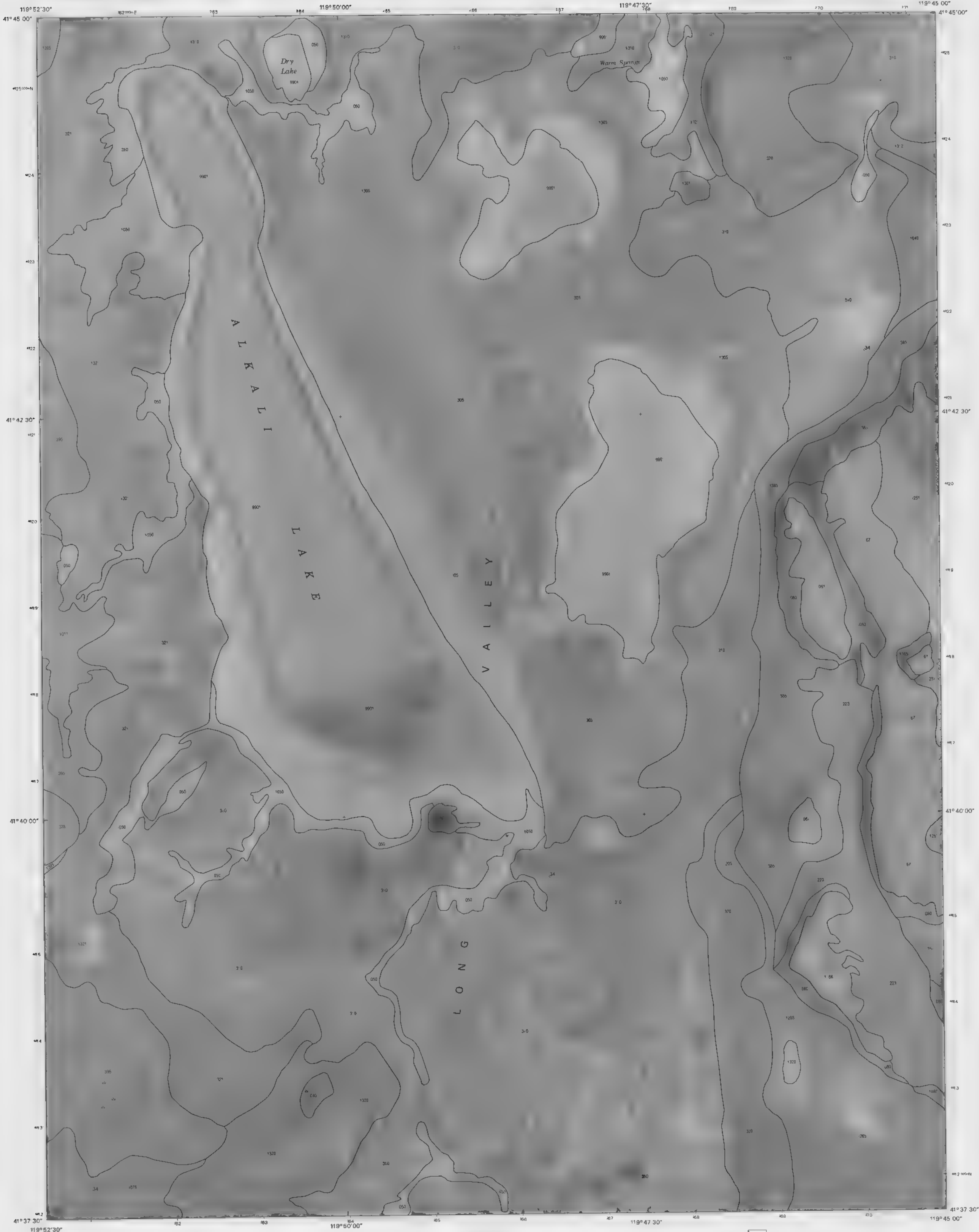


QUADRANGLE LOCATION



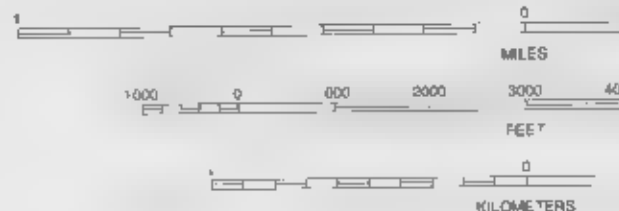
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CARTER RESERVOIR, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 10 OF 29



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1978 aerial photography.

North American Datum of 1927 (NAD27), Clarke 1886 Spheroid 1000-meter ticks, Universal Transverse Mercator zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

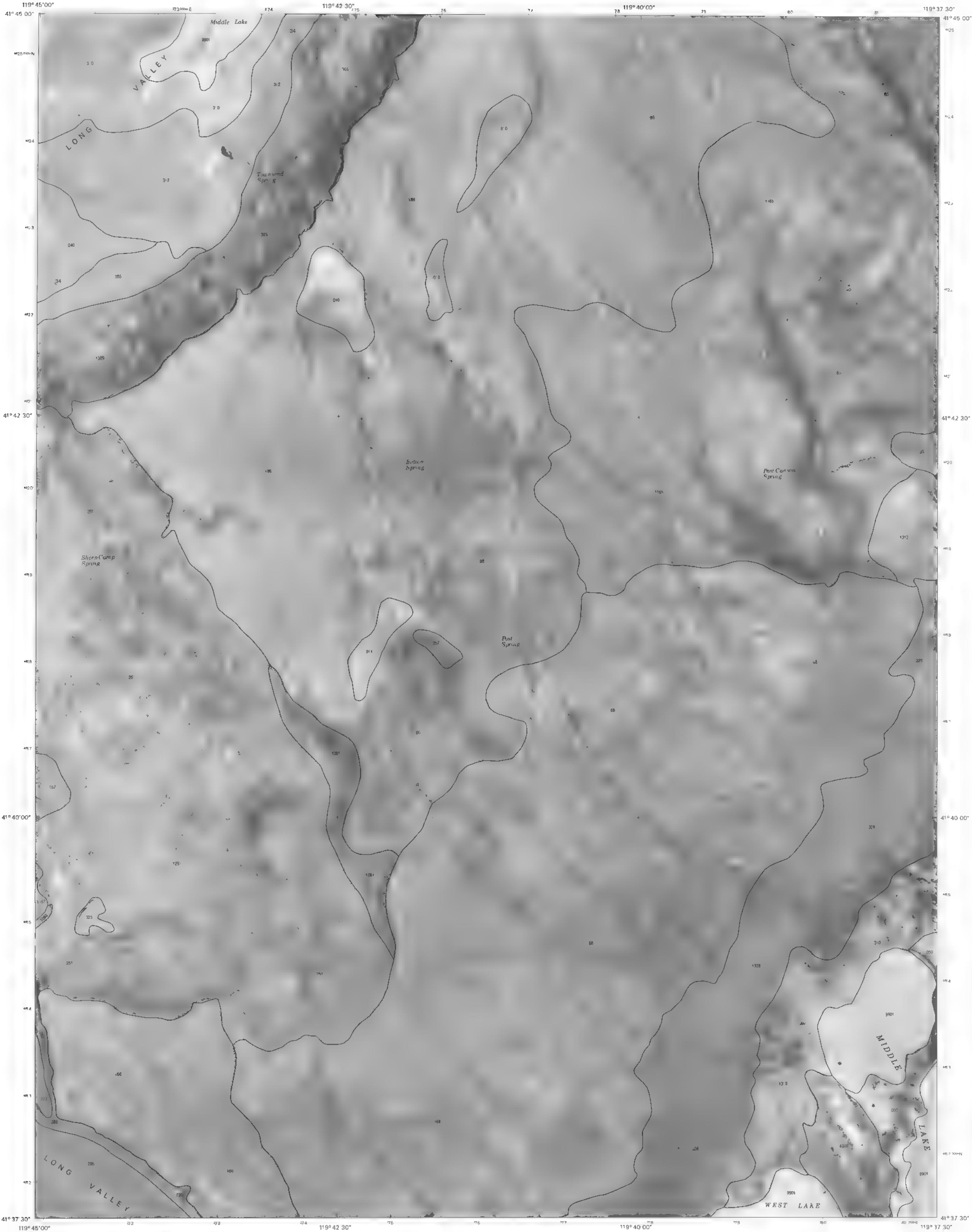


QUADRANGLE LOCATION

ALKALI LAKE, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 11 OF 29

1	2	3	1. CHICKS MEADOW
4	5	6	2. MOSQUITO VALLEY
7	8	9	3. CALCI TTA LAKE
			4. CARTER RESERVOIR
			5. MASSACRE LAKE NW
			6. FORTY-NINE MOUNTAIN
			7. VYA
			8. PAINTED POINT

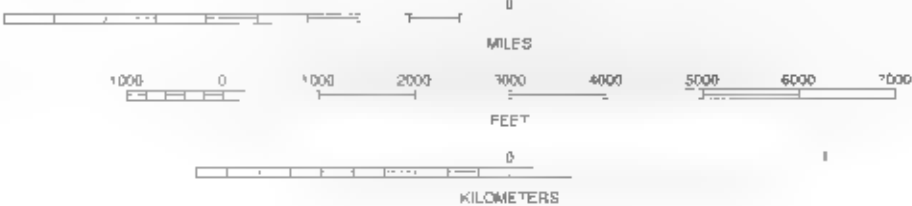
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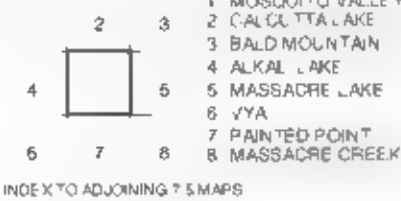
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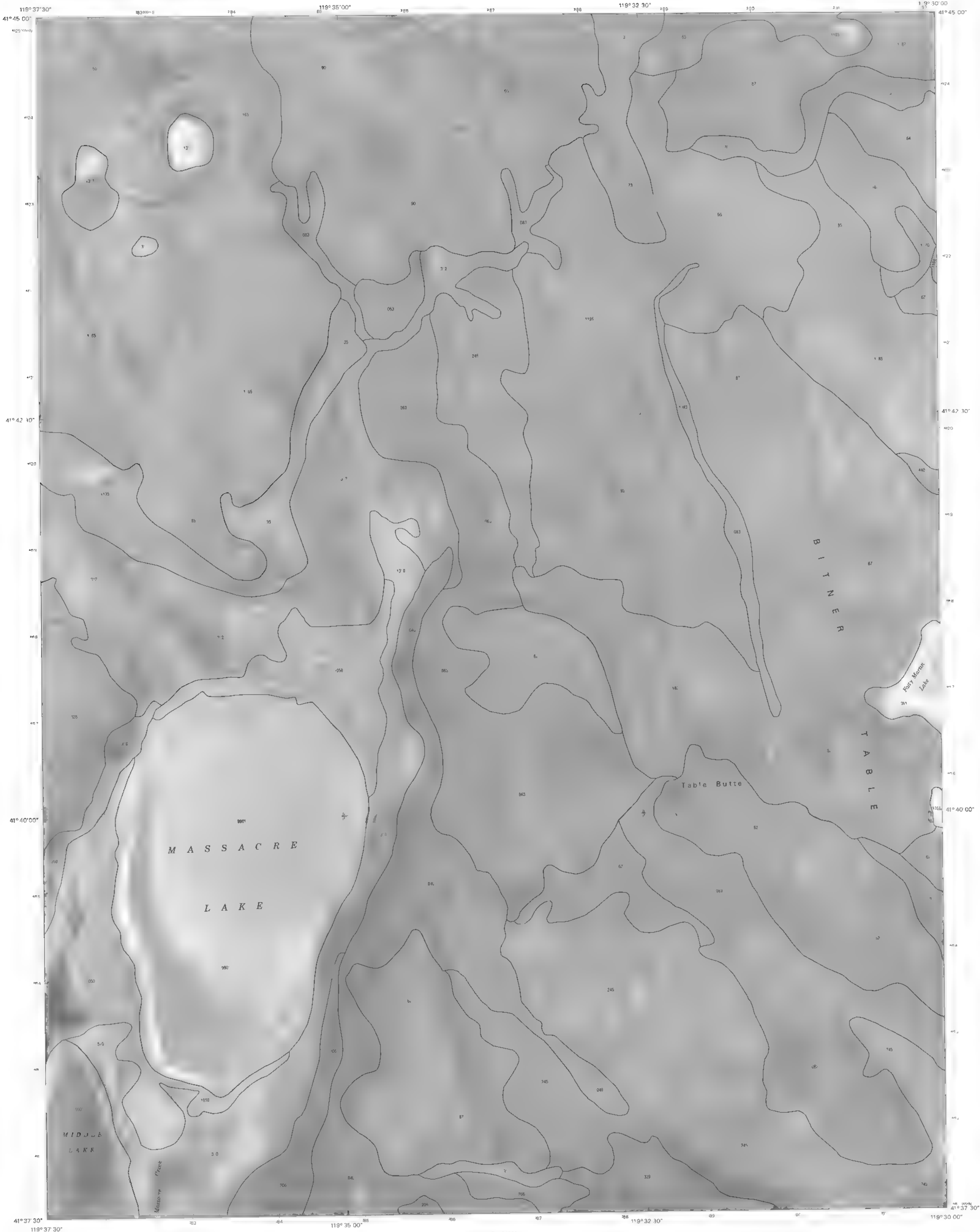


NORTH

QUADRANGLE LOCATION



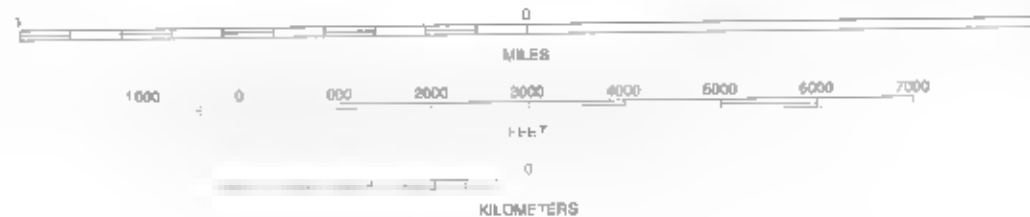
MASSACRE LAKE NW, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 12 OF 29



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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks in Universal Transverse Mercator zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

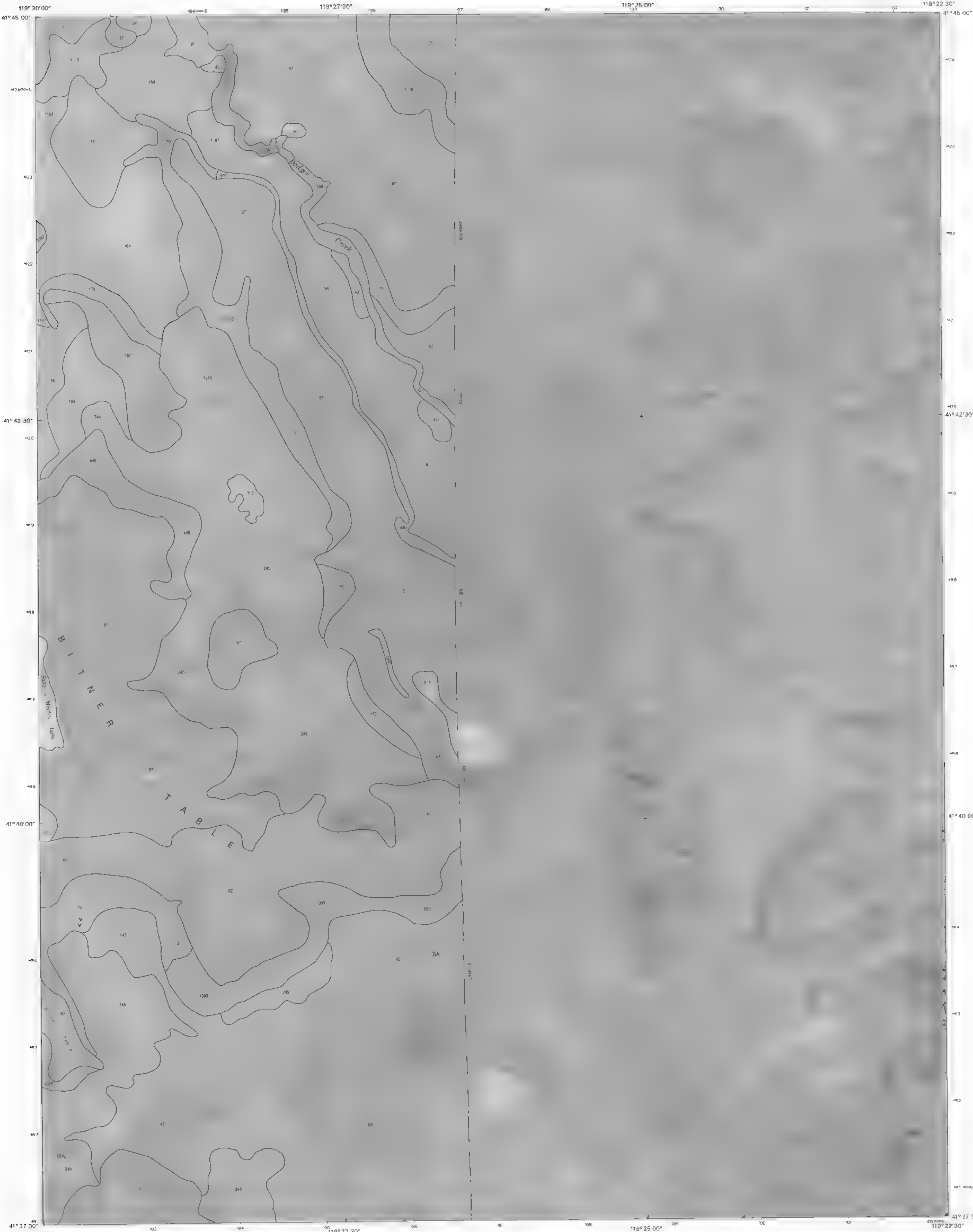
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QUADRANGLE LOCATION

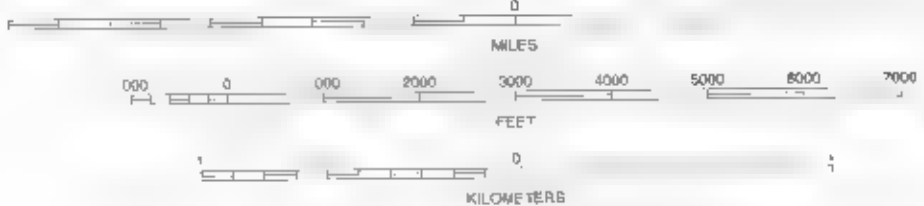


MASSACRE LAKE, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 29



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North American Datum of 1927 (NAD27) Clarke 1866 Spheroid 1000-meter ticks Universal Transverse Mercator zone 11 Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



BADGER MOUNTAIN NW, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 14 OF 29

1	2	3	4	5	6	7	8
1 BALD MOUNTAIN	2 SWAN LAKE	3 CATNIP MOUNTAIN SE	4 MASSACRE LAKE	5 BLOWOUT MOUNTAIN	6 MASSACRE CREEK	7 HILL MOUNTAIN	8 BADGER MOUNTAIN SE

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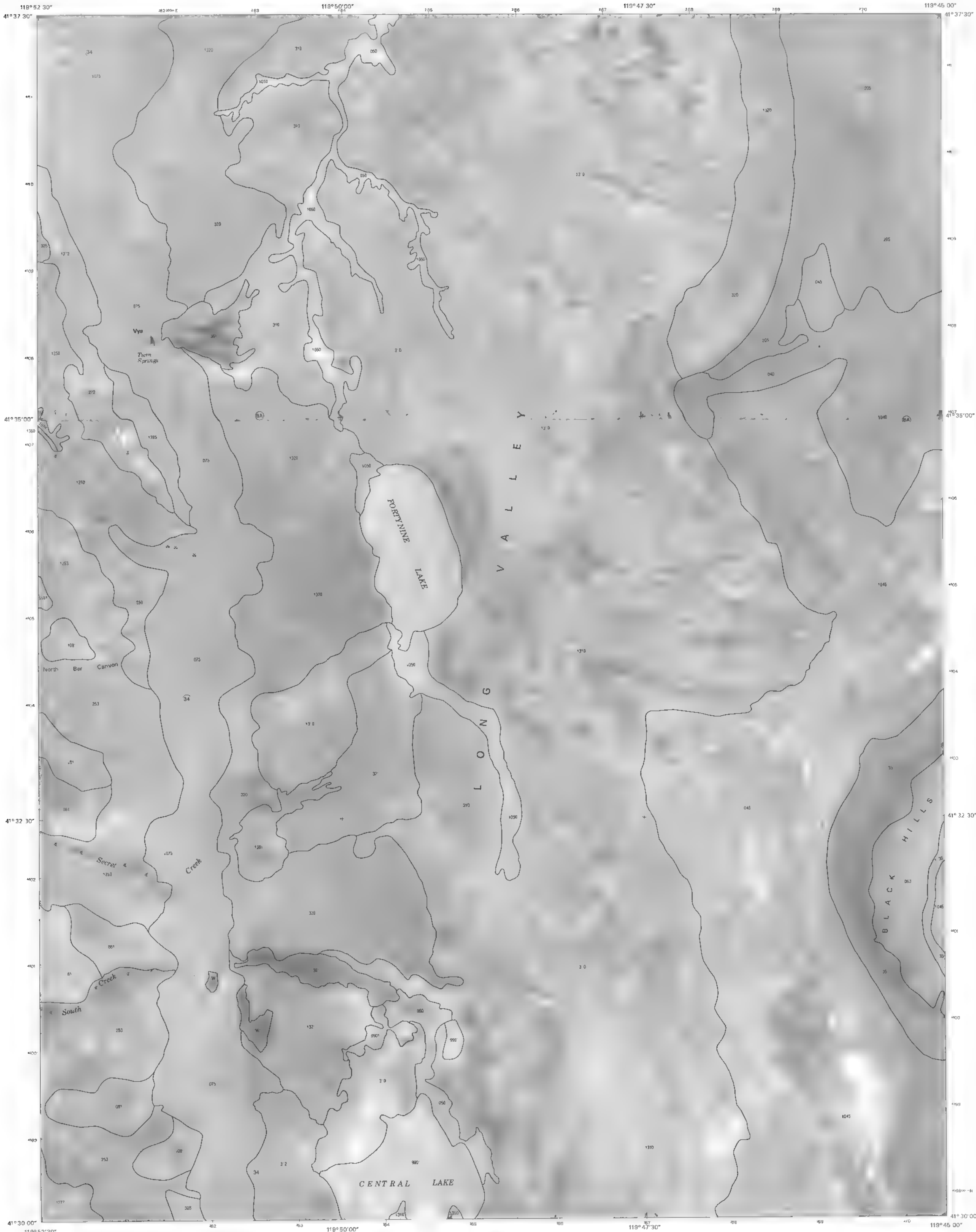
North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks, Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



FORTY NINE MOUNTAIN, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 15 OF 29

- | | | |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | 9 |
- 1 BOYD HOT SPRING
 - 2 CARTER RESERVOIR
 - 3 ALKALI LAKE
 - 4 LEONARDS HOT SPRINGS
 - 5 VVA
 - 6 HANSEN ISLAND
 - 7 BIG HAT MOUNTAIN
 - 8 BOULDER LAKE

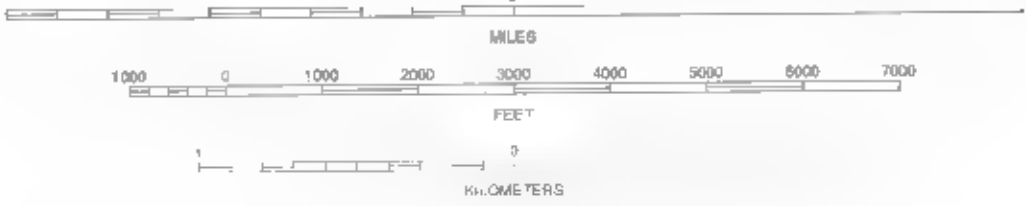
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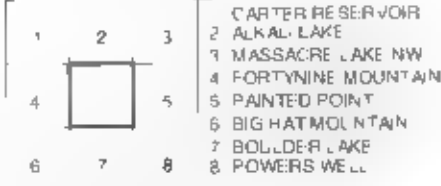
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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000 meter ticks, Universal Transverse Mercator, zone 11. Coordinate grid ticks and division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

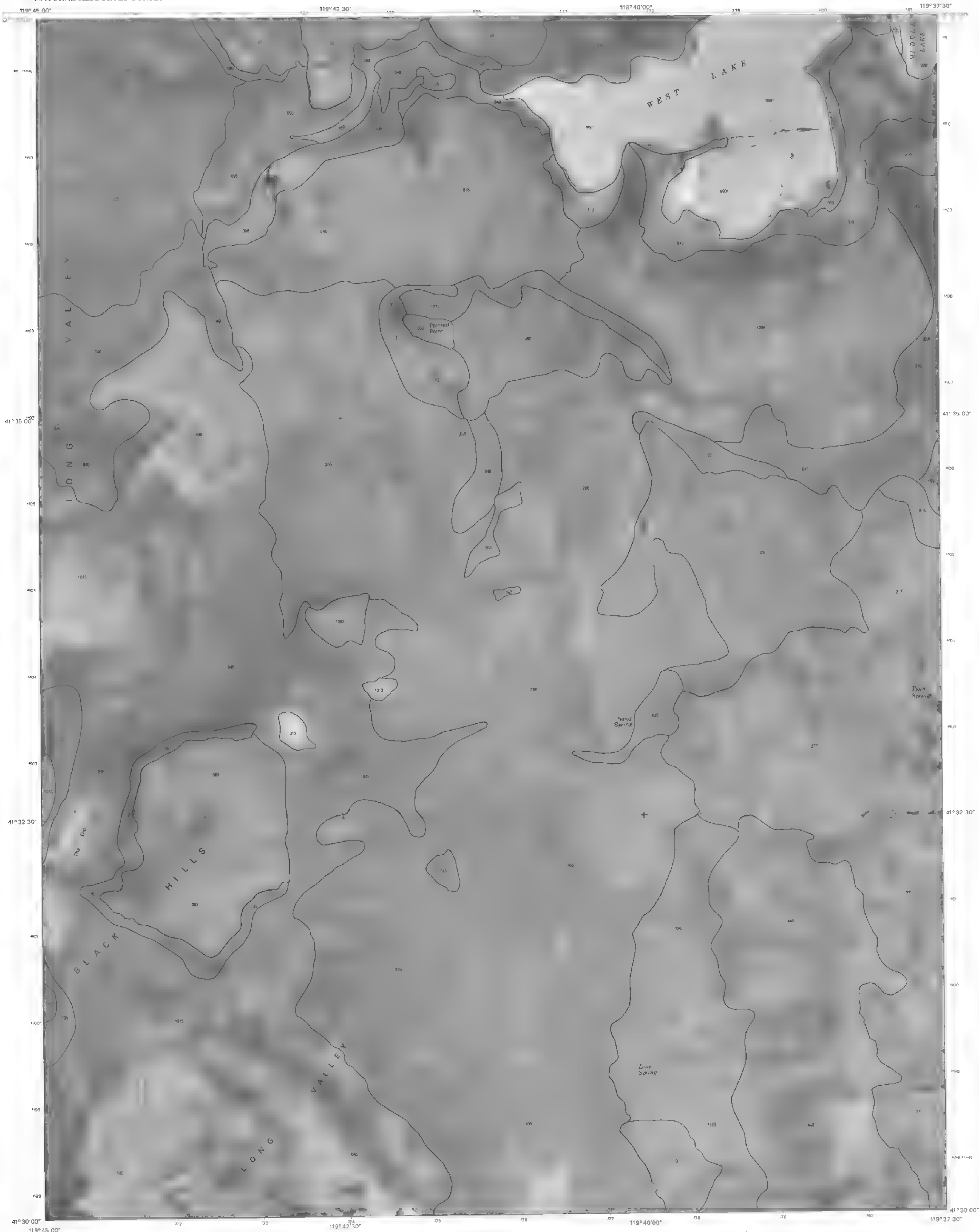
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QUADRANGLE LOCATION



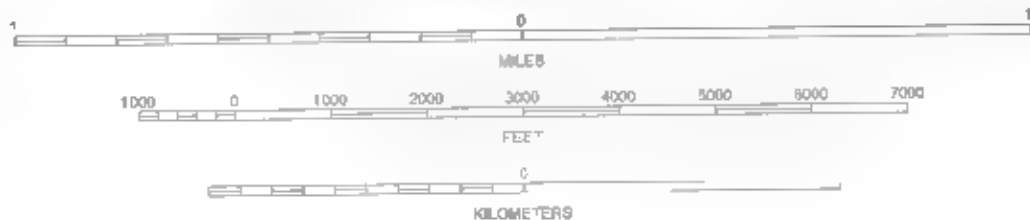
VYA, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 16 OF 29



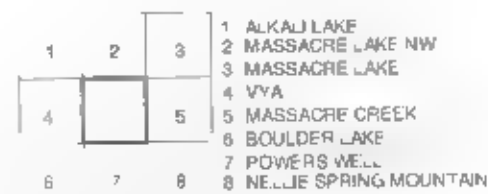
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1978 aerial photography.

North American Datum of 1927 (NAD27) Clarke 1866 Spheroid 1000-meter ticks Universal Transverse Mercator zone 11 Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

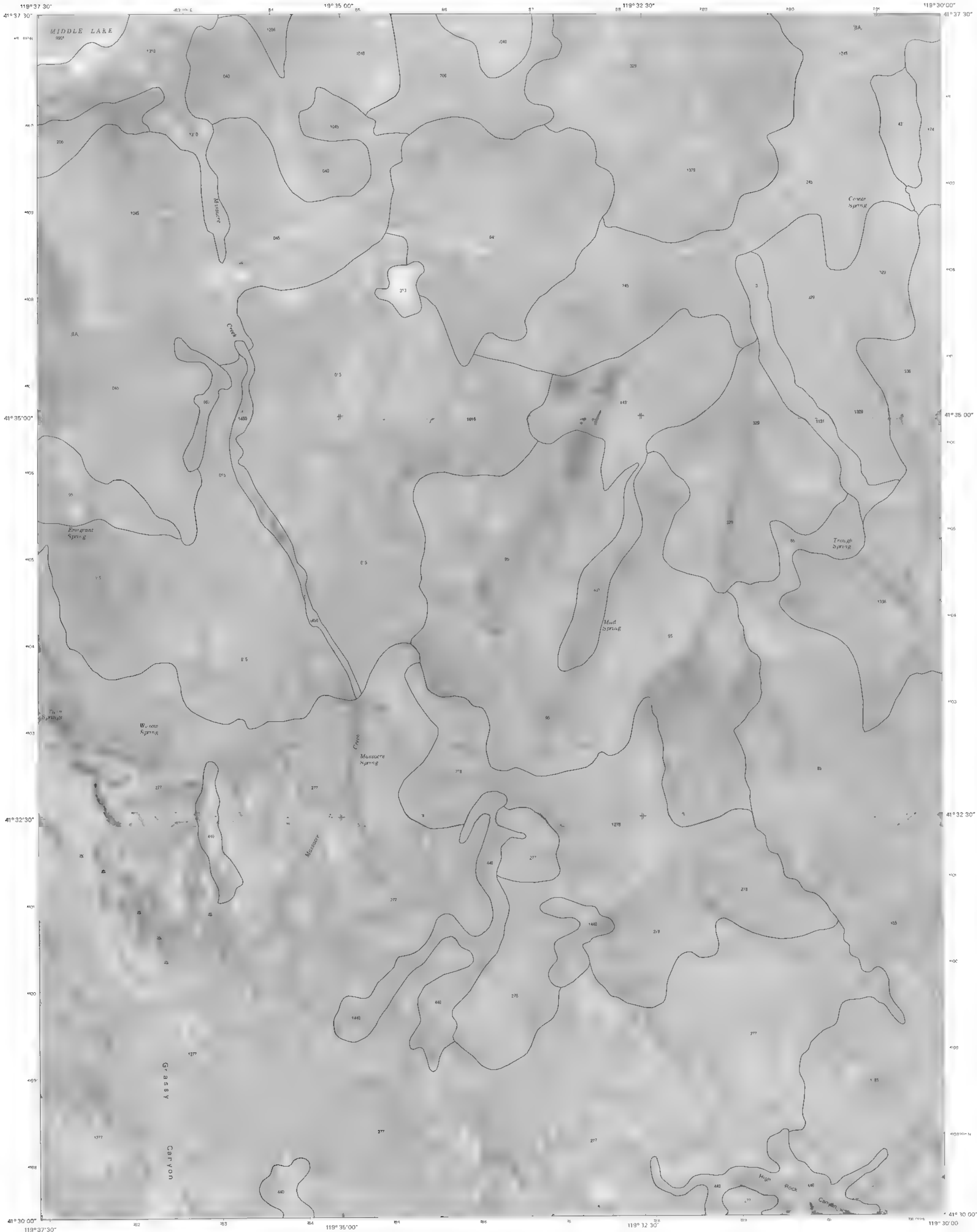
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QUADRANGLE LOCATION



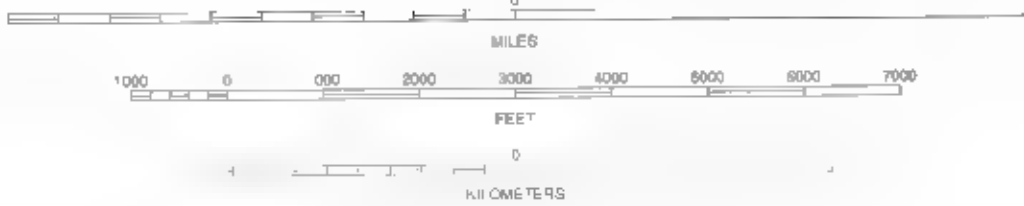
PAINTED POINT, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 17 OF 29



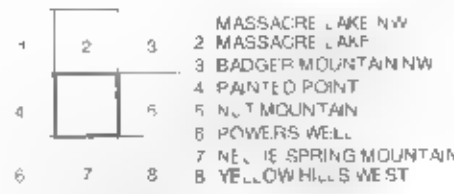
This soil survey was compiled by the U. S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U. S. Department of Interior, Geological Survey, from 1979 aerial photography.

North American Datum of 1927 (NAD27), Clarke 1856 Spheroid
1000-meter ticks, Universal Transverse Mercator zone 11
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

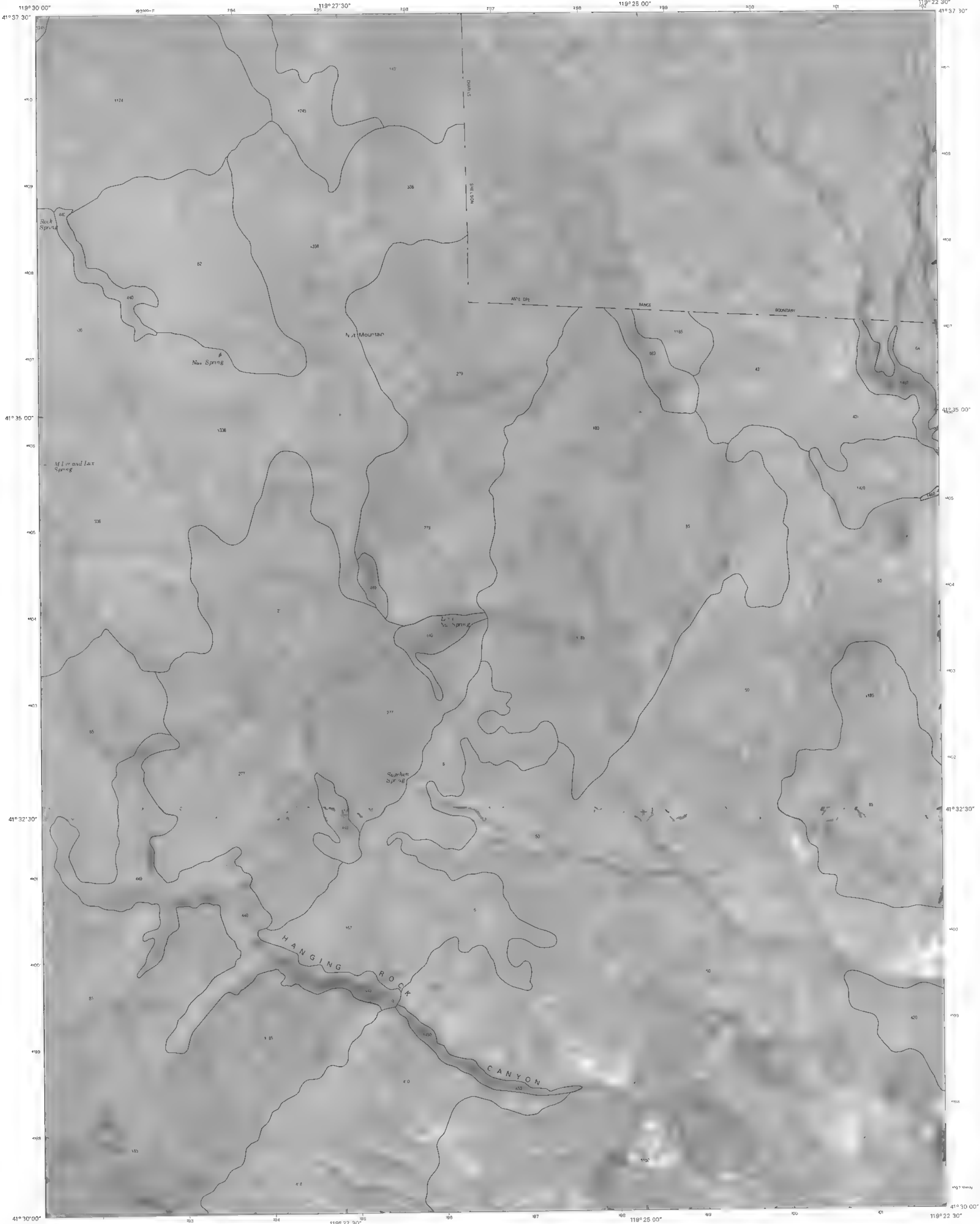
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QUADRANGLE LOCATION

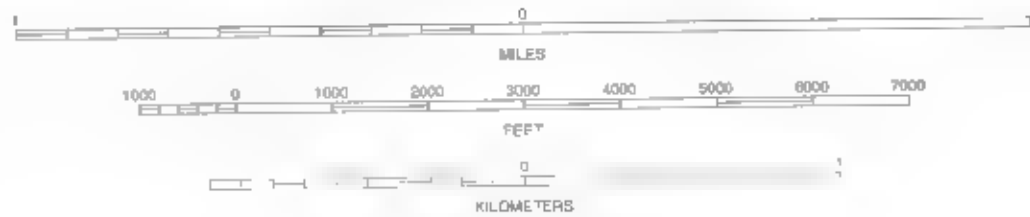


MASSACRE CREEK, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 18 OF 29

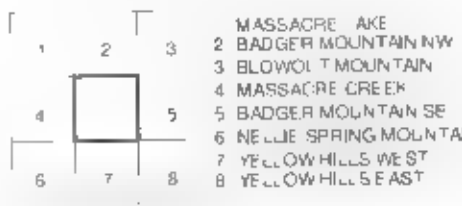


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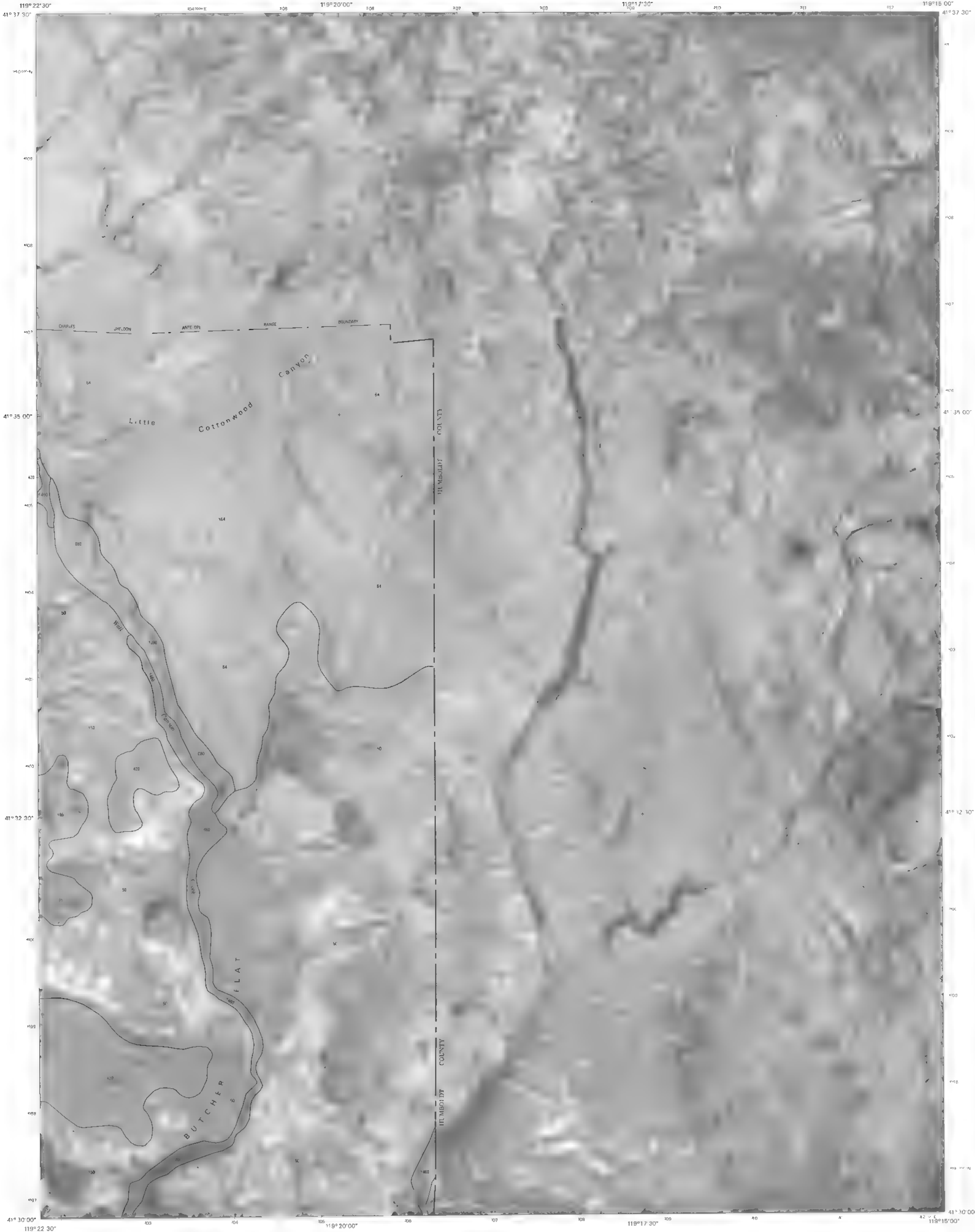
North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



NUT MOUNTAIN, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 19 OF 29

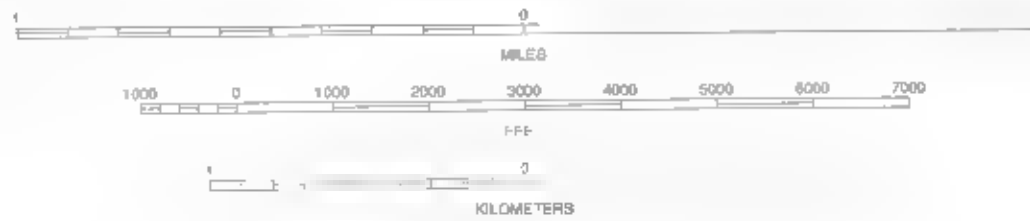


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthorectified photographs prepared by the U.S. Department of Interior, Geological Survey from 1978 aerial photography.

North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



SCALE 1:24000

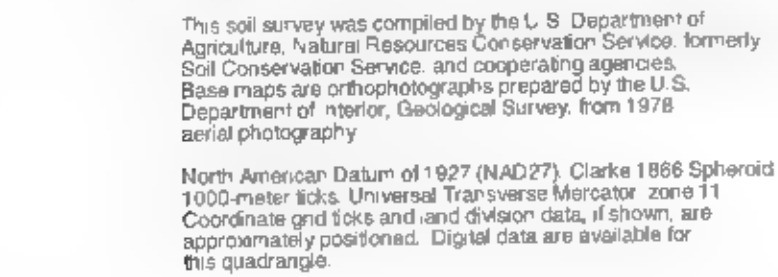


QUADRANGLE LOCATION



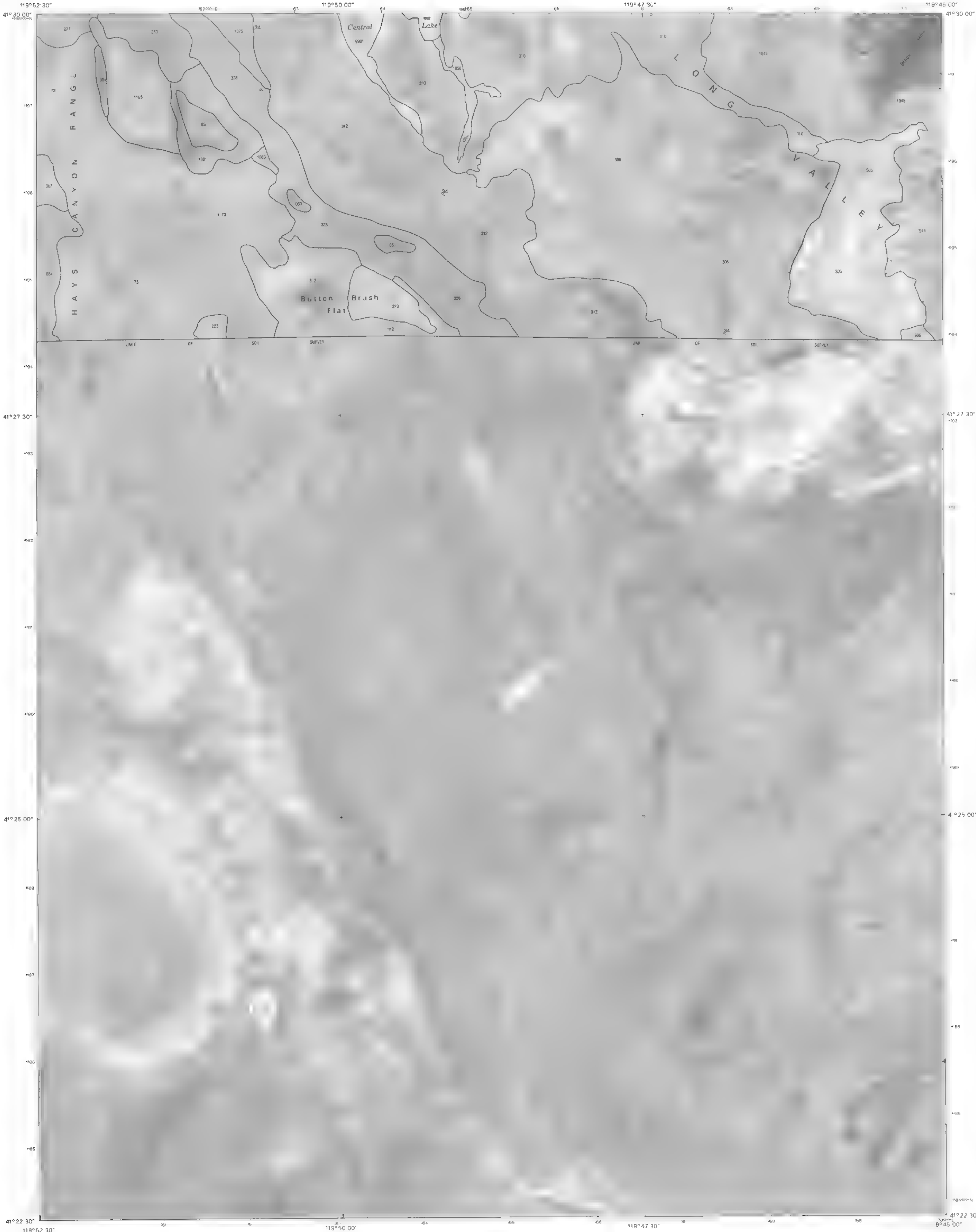
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BADGER MOUNTAIN SE, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 20 OF 29



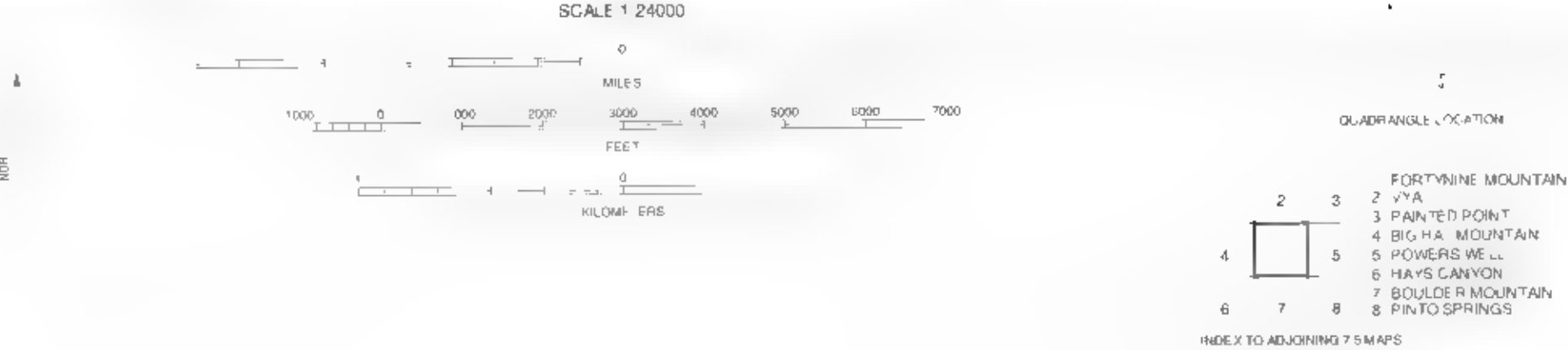
1	2	3	1 LEONARDS HOT SPRINGS
			2 FORTYNINE MOUNTAIN
			3 VYA
4		5	4 HANSEN ISLAND
			5 BOULDER AKE
			6 EAGLE WILLE
			7 HAYS CANYON
6	7	8	8 BOLLIER MOUNTAIN

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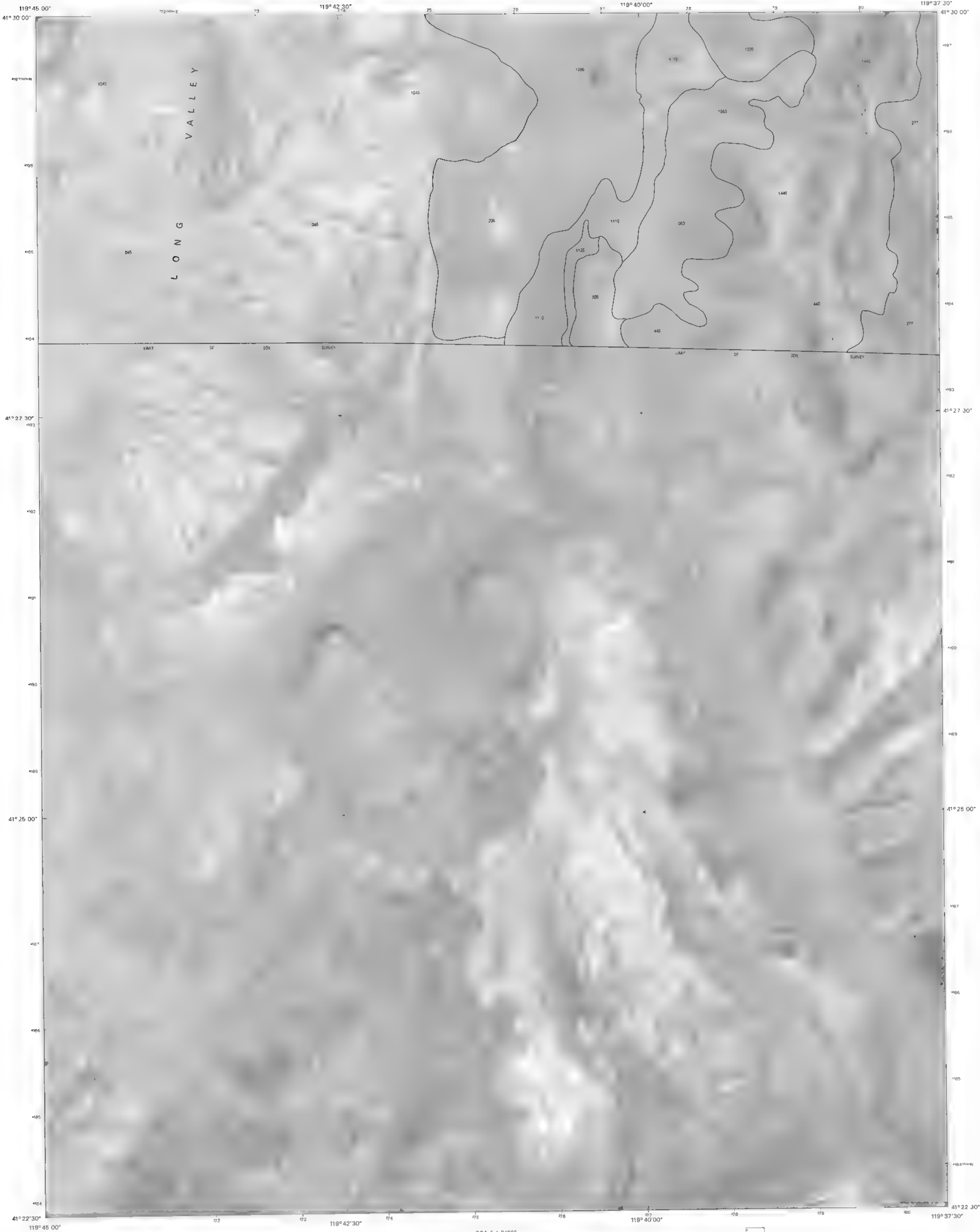


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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid. 1000-meter ticks, Universal Transverse Mercator zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

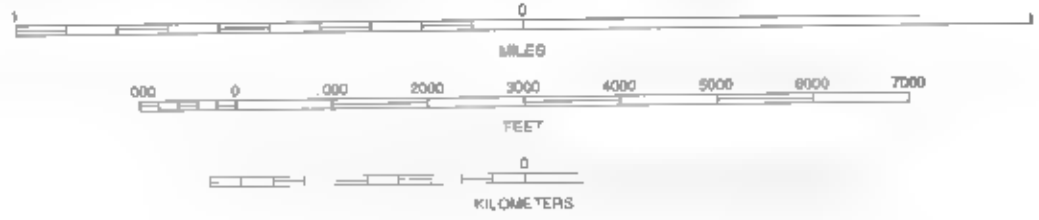


BOULDER LAKE, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 22 OF 29



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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks, Universal Transverse Mercator zone 11. Coordinate grid ticks and division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

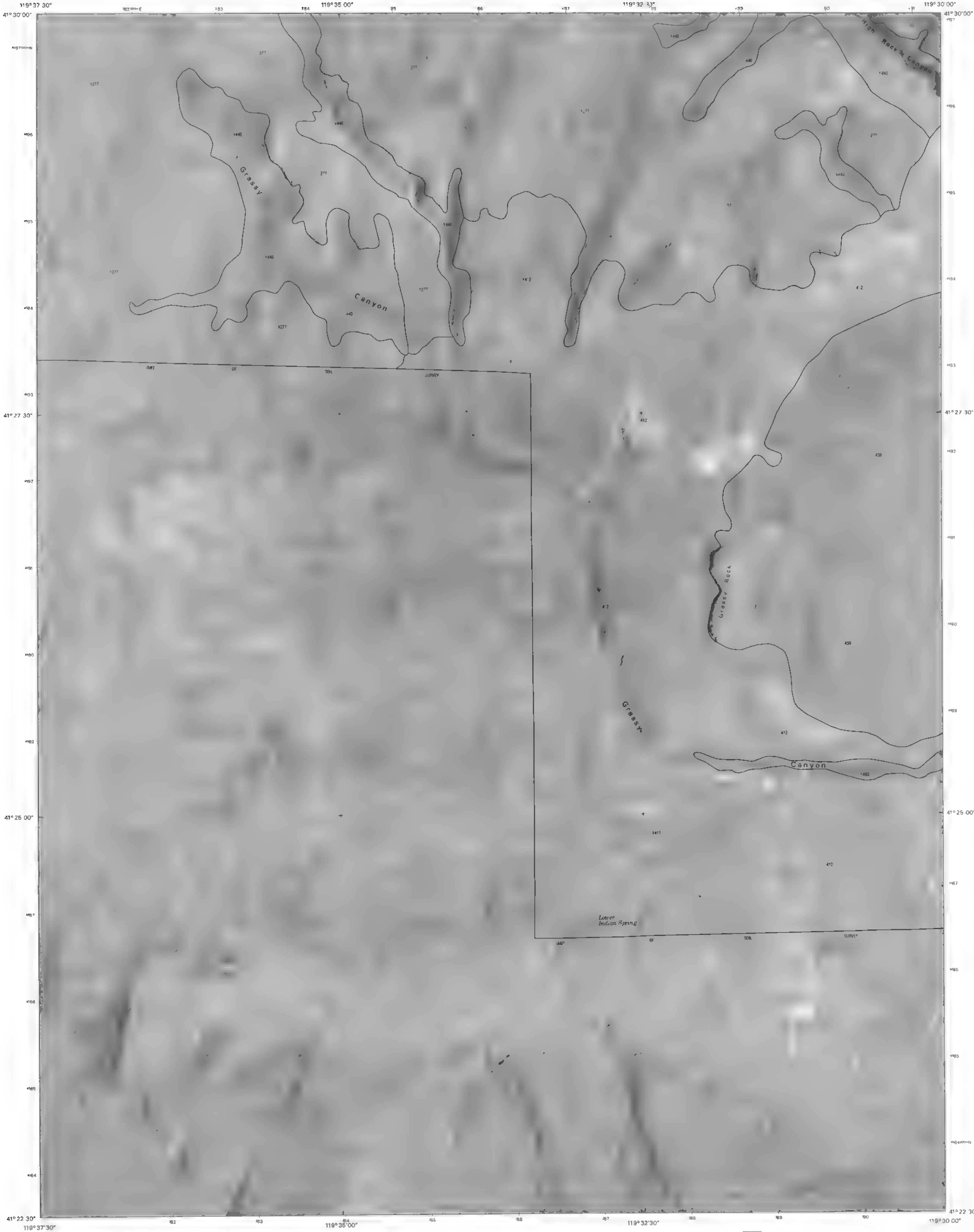


QUADRANGLE LOCATION

- | | |
|---|------------------------|
| 1 | VYA |
| 2 | PAINTED POINT |
| 3 | MASSACRE CREEK |
| 4 | BOULDER LAKE |
| 5 | NE LIE SPRING MOUNTAIN |
| 6 | BOULDER MOUNTAIN |
| 7 | PINTO SPRINGS |
| 8 | HART MOUNTAIN |

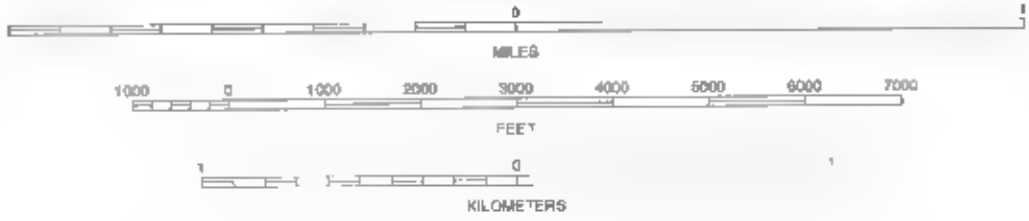
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POWERS WELL, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 23 OF 29



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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks, Universal Transverse Mercator zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

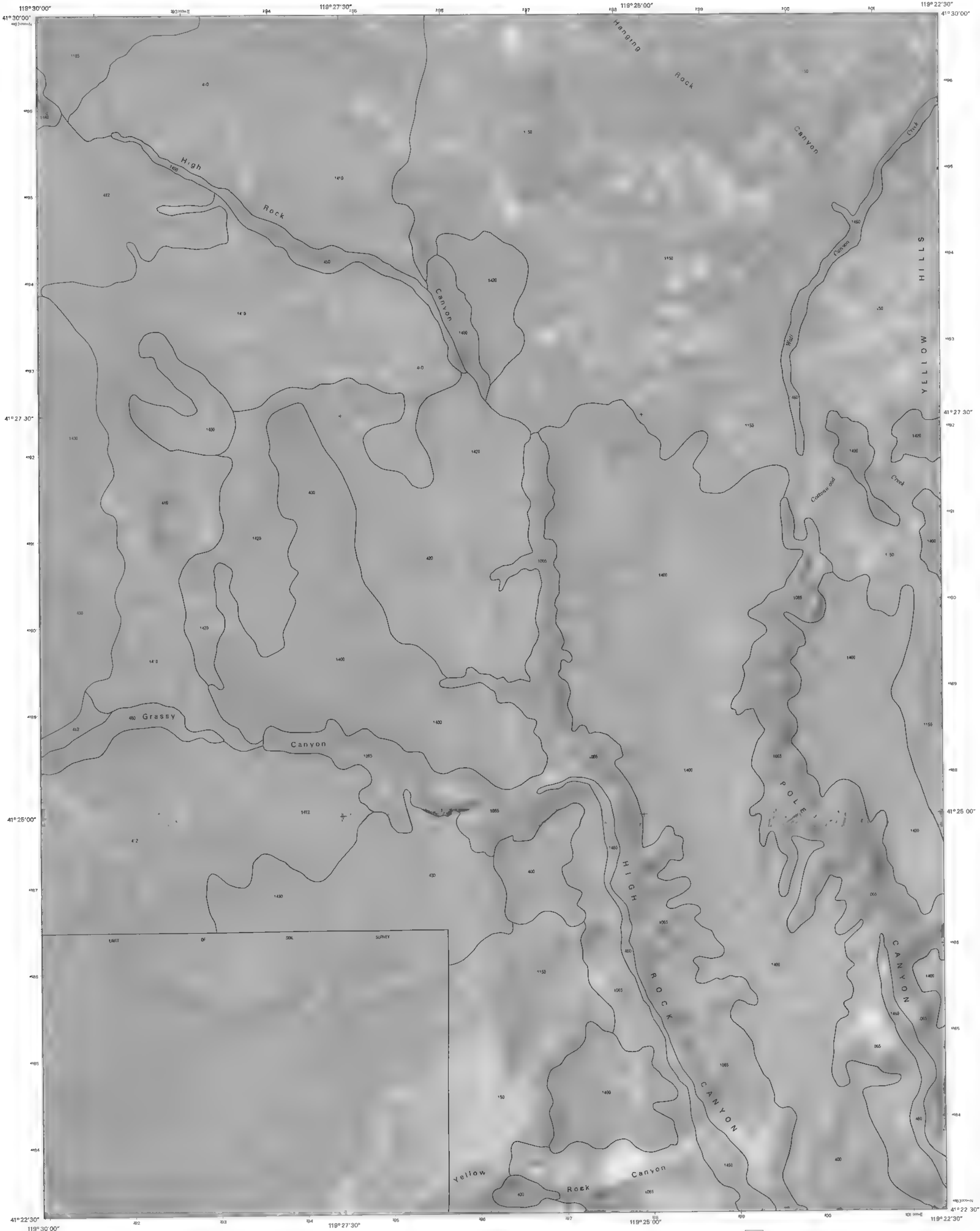


QUADRANGLE LOCATION

1	2	3	1 PAINTED POINT
4	5	6	2 MASSACHUSETT CREEK
7	8	9	3 NUT MOUNTAIN
10	11	12	4 POWERS WELL
13	14	15	5 YELLOW HILLS WEST
16	17	18	6 PINTO SPRINGS
19	20	21	7 HART MOUNTAIN
22	23	24	8 MAHOGANY MOUNTAIN

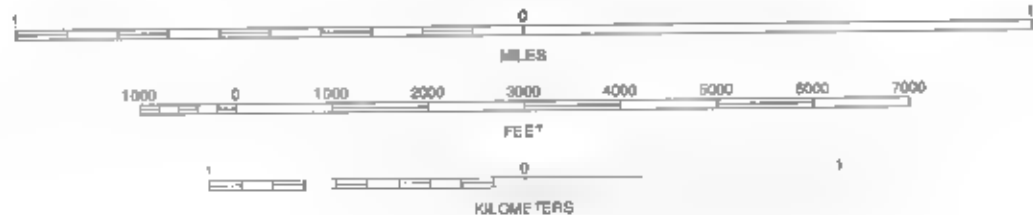
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NELLIE SPRING MOUNTAIN, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 24 OF 29



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North American Datum of 1927 (NAD27) Clarke 1886 Spheroid 1000-meter local universal Transverse Mercator zone 11 Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

1	2	3
4	5	6
7	8	9

1 MASSACRE CREEK
2 NUT MOUNTAIN
3 BADGER MOUNTAIN SE
4 NEVADA SPRING MOUNTAIN
5 YELLOW HILLS EAST
6 HART MOUNTAIN
7 MAHOGANY MOUNTAIN
8 HIGH ROCK LAKE

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YELLOW HILLS WEST, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 25 OF 29

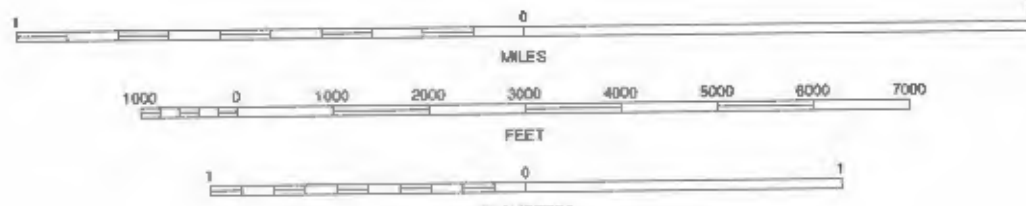


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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



SCALE 1:24000

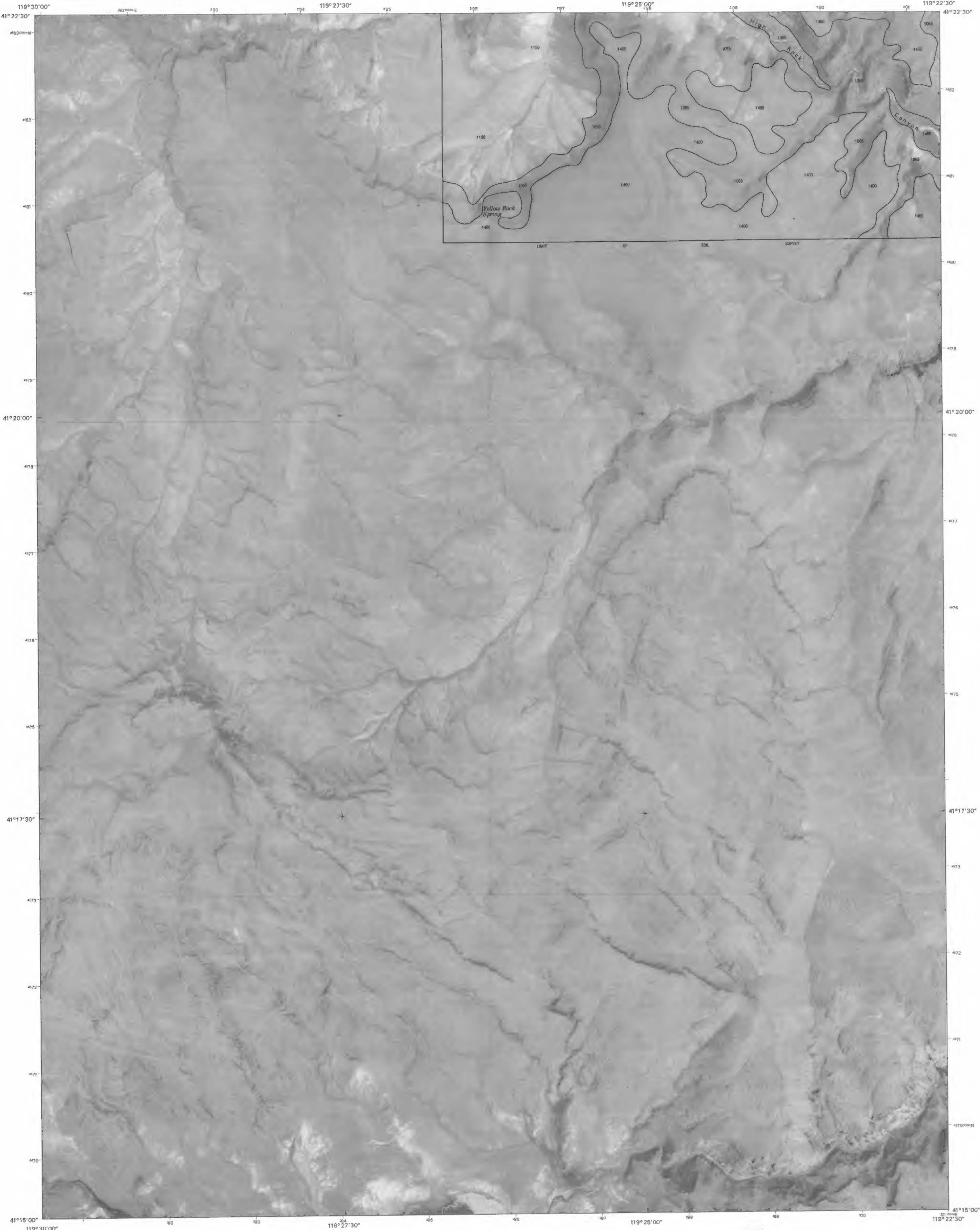


QUADRANGLE LOCATION

YELLOW HILLS EAST, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 26 OF 29

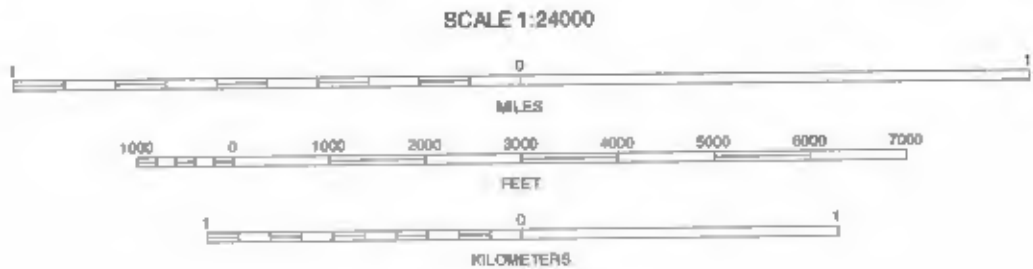
1	2	3	1 NUT MOUNTAIN
4	5	6	2 BADGER MOUNTAIN SE
7	8	9	3 BEAR BUTTES
			4 YELLOW HILLS WEST
			5 SOLDIER MEADOW
			6 MAHOGANY MOUNTAIN
			7 HIGH ROCK LAKE
			8 MUD MEADOW

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North American Datum of 1927 (NAD27). Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

MAHOGANY MOUNTAIN, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 27 OF 29

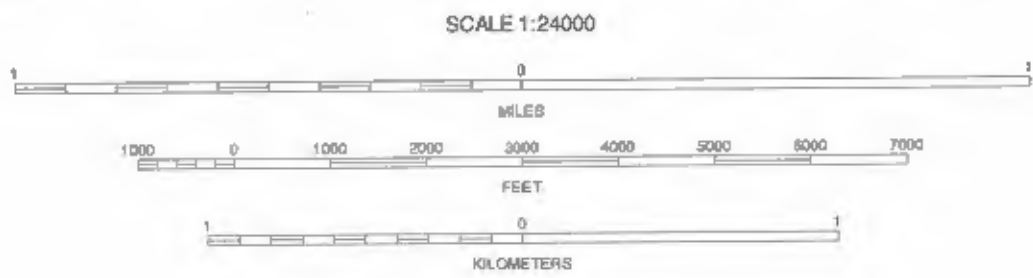
1	2	3	1 NELLIE SPRING MOUNTAIN
			2 YELLOW HILLS WEST
			3 YELLOW HILLS EAST
4		5	4 HART MOUNTAIN
			5 HIGH ROCK LAKE
			6 CHESTER LYONS SPRING
6	7	8	7 BUTTE SPRING
			8 MCCONNELL CANYON

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North American Datum of 1927 (NAD27). Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

1	2	3	1 YELLOW HILLS WEST
4	5	6	2 YELLOW HILLS EAST
7	8	9	3 SOLDIER MEADOW
10	11	12	4 MAHOGANY MOUNTAIN
13	14	15	5 MUD MEADOW
16	17	18	6 BUTTE SPRING
19	20	21	7 MCCONNEL CANYON
22	23	24	8 WAGNER SPRINGS

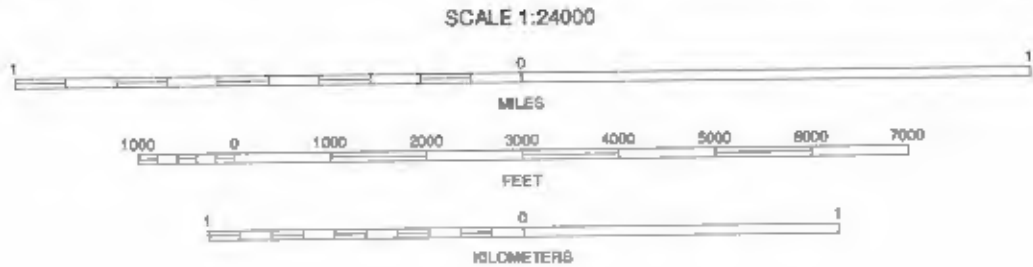
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HIGH ROCK LAKE, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 28 OF 29



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North American Datum of 1927 (NAD27), Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

MCCONNEL CANYON, NEVADA
7.5 MINUTE SERIES
SHEET NUMBER 29 OF 29

1	2	3	1 MAHOGANY MOUNTAIN
			2 HIGH ROCK LAKE
			3 MUD MEADOW
4		5	4 BUTTE SPRING
			5 WAGNER SPRINGS
			6 LEADVILLE
6	7	8	7 DIVISION PEAK
			8 DONNELLY CREEK

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